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PART FIRST.

Original Communications.

ART. I.—*A Catalogue of the principal known Medicinal Plants, native and exotic, growing in the State of New-York, with brief Notes on their Composition, Properties, etc.* By the EDITOR. (*Continued.*)

DIVISION I.—FLOWERING OR PHENOGAMOUS PLANTS.

CLASS I.—EXOGENOUS PLANTS.

SUB-CLASS I.—POLYPETALOUS EXOGENOUS PLANTS.

NATURAL ORDERS.

LEGUMINOSÆ, *Linn.*—(THE BEAN TRIBE.)

VICIA, four species, two exotic and two indigenous. Cultivated in Europe as herbage for cattle, under the names of *Winter* and *Summer Tare.*

PHASEOLUS,* *Linn.*, (Kidney Bean.) Three wild indigenous species. PERENNIS; DIVERSIFOLIUS; HELVOLUS. PH. VULGARIS, *Linn.*, (Kidney Bean. Pole Bean.) LUNATUS, (Lima Bean.) Cultivated for the table. Less nutrient and flatulent than peas, and the ordinary white beans. Chiefly employed in the young and green state of their legumina. The substance when boiled is of the oleraceous kind; but though sweeter and more nutrient than these, is still tender and easily digested.

APIOS,† *Boerh.*, (Ground Nut.) TUBEROSA. (Sometimes called Wild Bean.) Root produces fleshy *tubers*, about the size of chestnuts, which are esculent and nutritious, for which the plant is supposed worthy of culture. Legume about two inches long.

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* Latin, *phaseolus*, a little boat, from the shape of the legumes.
† Greek, *apios*, a pear—form of root.

Amphicarpea* Monoica, *Torr. and Gr.*, (Common Hog Nut.) A very curious plant. Root fibrous and branching. Nutritious. Annually producing numerous small subterraneous flowers. (Torrey.)

Robinia Pseudacacia, *Linn.*, (Common Locust Tree.) The inner bark is sometimes used for emetic purposes. The wood is one of the most valuable for many purposes in the arts. When newly cut, it weighs 63 pounds 3 ounces to a cubic foot; when dry, 46 pounds. The wood is remarkable for strength and durability; hence much employed in ship-building, and for posts, and underground structures. The tree is very apt to be destroyed by the *Clytus Pictus*, and the *Cassus Robinia*, (Locust-tree Carpenter Moth.) (See *Peck*, in *Mass. Agricult. Rep. and Jour.*, Vol. V.) The leaves are a good substitute for grass and clover as provender for cattle, for which it is cultivated, and mown every year; also branches cut off every other year, when it has attained the height of ten feet. This is done at mid-summer, when succulent, and dried for winter's use. The *roots* are very sweet, and afford an extract which might be substituted for liquorice. The flowers have been employed medicinally as antispasmodic, and distilled into an agreeable, refreshing syrup, which is drank with water, to quench thirst. The flowers retain their fragrance when dried, and those of a single tree are sufficient to perfume a whole garden.

Zephrosia† Virginiana, *Pers.*, (Goat's Rue.) An infusion of the root is a very popular vermifuge.

Trifolium, *Linn.*, five species. Arvense, (Stone Clover.) Pratense, *Linn.*, (Red Clover.) Reflexum, *Linn.*, (Buffalo Clover.) Repens, *Linn.*, (White Clover.) Agrarium, (Yellow Clover.) The *Pratense* is well known as a most valuable fodder plant, making the best sort of hay, either by itself or mixed with other grasses. Probably a biennial. The *Reflexum* affects the salivary glands, and is common in the Western States. The *Repens* also acts powerfully on the salivary glands, sometimes producing complete salivation. (Elliot.)

Melilotus Officinalis, *Willd.*, (Yellow Melilot.) When dry, this plant has an agreeable odor, much like that of the sweet-scented vernal grass. Said to be the chief ingredient used for flavoring the *Gruyère cheese*. Three species. Formerly included among emollients, but contains very little mucilage.

Genista‡ Tinctoria, *Linn.*, (Dyer's Green-weed) An exotic. The plant yields a coloring matter that is used for dying wool yellow. It has also been employed in medicine as a diuretic and mild purgative. The seeds are emetic and cathartic, in doses of ʒj. to ʒij.; also diuretic and useful in dropsy.

Baptisia§ Tinctoria, *R. Brown*, (Wild Indigo.) An indigenous, perennial plant. Medical properties reside chiefly in the cortical portion of the root. In large doses emetic and cathartic, in smaller mildly laxative. Said to be useful in scarlet fever, typhus fever, and that

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* From *amphi* on both sides, and *carpos*, fruit, producing fruit both above and below ground.

† From the Greek, *zephros*, ash-colored.

‡ From the Celtic, *gen*, a small bush.

§ From the Latin, *bapto*, to dye, some of the plants yielding a coloring matter, like Indigo.

state of the system which attends gangrene; also externally to ulcers. The plant yields a quantity of coarse Indigo, resembling the *fig blue.*

Cassia Marilandica, *Linn.*, (American Senna.) A well-known cathartic. Taste slightly nauseous, leaves contain resin, extractive, and a volatile oil, equal to foreign, only requiring a larger quantity.

Cercis Canadensis, *Linn.*, (Red-Bud, or American Judas Tree.) Niagara county. The flowers are acid, and used by the French Canadians for salads and pickles.

Gymnocladus* Canadensis, *Linn.*, (Coffee Tree.) Trunk thirty to fifty feet high, one foot or more in diameter; branches few and thick; *bark* bitter and acrid; leaves one to three feet long; legume six–ten inches long, two inches broad; seeds half an inch in diameter. On Seneca and Cayuga lakes. According to Michaux, the wood of this tree is well suited to cabinet-making, and its strength renders it proper for building. Like the locust, it has the power of rapidly converting its sap into perfect wood. Much esteemed as an ornamental tree.

Rosaceæ, *Juss.*—(The Rose Tribe).

Prunus† Americana, *Marshall*, (Red Plum. Yellow Plum.) A tree eight to ten feet high, fruit half an inch in diameter, oval or nearly globose, mostly reddish-orange when ripe, with a juicy yellow pulp, and a thick tough skin. Palatable when cultivated, but rather acerb in a wild state.

Prunus Maratima, *Wang.*, (Beach Plum. Sand Plum.) Two to five feet high; fruit usually purple, and sometimes crimson; two varieties; one has fruit often an inch in diameter, and somewhat oval; the fruit of the other is the size of a small cherry. When fully ripe agreeably flavored, but mostly acerb and astringent. Sold in N. York market under the name of *Beach Plum.* Both species laxative and nutritious. The pulp might make a useful addition to cathartic decoctions, or be used in preparing laxative confections. (*Off. Prep. Pruni Pulpa, U. S. P.*)

Cerasus‡ Pumila, *Michx.*, (Sand Cherry.) Stem, trailing; two to three feet long; fruit small, dark-red, eatable. Rare.

C. Pennsylvanica, *Loisel*, (Bird Cherry.) Tree twenty to twenty-five feet high; fruit, size of a large pea, red, austere, scarcely eatable.

C. Virginiana, *De Cand.*, (Choke Cherry.) A shrub or small tree. Fruit, size of a pea, bitter, astringent, scarcely eatable. Pulp forms a good astringent jelly in dysentery and diarrhœa.

Cerasus Vulgaris, *Mill.*, (Red, or Sour Cherry. Morello Cherry.) Extensively employed for pies and pastries. One of the most valuable varieties. Refrigerant, laxative, antiseptic. The juice forms a cooling drink in fevers; is also nutritious. Cullen considers cherries as decidedly *sedative*, owing to the malic acid present.

C. Serotina, *De Cand.*, (Wild Cherry. Black Cherry.) A well known tree, erroneously called *C. Virginiana* by some writers. Bark only officinal. Taste agreeably bitter and aromatic. *Chem. Comp.*

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* From *gymnos*, naked, and *klados*, branch—its branches are few and large.

† The Latin name for Plum.

‡ The name of a town in Asia, whence the Cherry originally came.

Starch, tannin, resin, gallic acid and fatty matter, lignin, red coloring matter, salts of lime, potash and iron. Volatile oil and hydrocyanic acid are obtained from it by distillation, but they do not exist ready-formed in the bark, but result from the reaction of water upon *emulsin* and *amygdalin*, two of its constituents. These two peculiar principles are contained in distinct cells, in the seeds of the *Amygdalea*, and when the kernels are bruised, and especially when heat is applied, they immediately react on each other, and give rise to the formation of *prussic acid* and some other products. The wild cherry bark is one of our best tonics, as it combines sedative properties—the power of calming irritation and diminishing nervous excitaility; hence it is well adapted to, cases of gastric debility, attended with general or local irritation; lowers the action of the heart; useful in latter stages of phthisis, hectic fever, atonic dyspepsia, nervous irritability; intermittents, and convalescence from inflammatory and other diseases. Cold infusion is the best form of administration—syrup and powder also used. (See *Wood & Bache*, p. 578, *Off. Prep. Inf. Prun. Virg.*)

Spiræa* Tomentosa, *Linn.*, (Hard Hack. Steeple Bush.) A well known plant; all parts medicinal; contains tannin, gallic acid, and bitter extractive. Medical properties, tonic and astringent; hence used in diarrhœa, cholera infantum, and general debility; more agreeable to the stomach than most other astringents. Given in decoction or extract—dose of former ℥ i–℥ ij., of latter 5 to 15 grains. The *S. Salicifolia*, (Queen of the Meadows,) has probably similar properties.

Gillenia Trifoliata, *Maench.*, (Indian Physic.) G. Stipulacea, *Nutt.*, (American Ipecacuanha.) These two valuable plants grow in the western and southwestern counties of this State. Stem, herbaceous; root, perennial, and officinal. A very mild and efficient emetic and cathartic. In small doses, tonic and deobstruent—resembles ipecac. in its mode of operation, more than any other indigenous article. Dose of powdered root, 20 to 30 grains.

Geum† Rivale, *Linn.*, (Water Avens. Purple Avens.) The *root*, a good tonic and powerful astringent; decoction, powder or extract; in passive hemorrhages, leucorrhœa, diarrhœa, dyspepsia, and the debility of phthisis pulmonalis. The root is a popular medicine made into a syrup, for "cleansing the blood." Also said to be used as a substitute for *chocolate*.

Sanguisorba‡ Canadensis, (American Great Burnet.) Tonic and astringent.

Agrimonia§ Eupatoria, *Linn.*, (Common Agrimony.) The herb and root. The former has a weak, but agreeable aromatic odor, and a rough, bitterish, aromatic taste; root more bitter and astringent; contains a volatile oil. A mild tonic and astringent, also deobstruent. Has been recommended in jaundice, uterine hemorrhage, visceral obstructions, and diseases of the skin; also as a gargle in affections of the throat. The Indians use it in fevers. Given in substance, infusion or decoction.

Potentilla‖ Norvegica, *Linn.* Tridentata, *Ait.* Canaden-

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* The *speireia* of Theophrastus.
† From the Greek, *geuæ*, an agreeable flavor, the root being aromatic.
‡ From *sanguis*, blood, and *sorbes*, to absorb, because used to stop bleeding.
§ From the Greek, *argeme*, cataract, which this plant was supposed to cure.
‖ From the Latin, *potens*, in allusion to its supposed medicinal properties.

SIS, *Linn.* ARGENTEA, *Linn.* ARGUTA, *Pursh.* FRUTICOSA, *Linn.* ANSERINA, *Linn.* All these species of *Cinquefoil* are good mild astringents, and may be used with advantage where such remedies are indicated.

FRAGARIA VIRGINIANA, *Ehrh.*, (Wild Strawberry.) The Strawberry deserves a place among medicinal, as well as dietetical plants. The fruit is laxative, refrigerant, diuretic and sedative, and constitutes an excellent article of diet for invalids, and convalescents from other diseases. The root and leaves are mildly astringent.

RUBUS* ODORATUS, *Linn.*, (Flowering Raspberry.) R. TRIFLORUS, *Rich.*, (Dwarf Raspberry.) STRIGOSUS, *Michx.*, (Red Wild Raspberry.) OCCIDENTALIS, *Linn.*, (Black Raspberry.) VILLOSUS, *Ait.*, (Common Blackberry.) CANADENSIS, *Linn.*, (Dewberry. Low Blackberry.) HISPIDUS, *Linn.*, (Running Swamp Blackberry.) CUNEIFOLIUS, *Pursh*, (Sand Blackberry.) The roots of all these species contain tannin, and are tonic and astringent. That of the *Villosus* is a favorite domestic remedy in bowel affections. The watery decoction sets well on the stomach, or it may be given boiled with milk or rennet whey, ℥ i. of smaller roots boiled in a pint to half a pint, of which ℥ i.– ℥ ij. are to be given three times a-day, in diarrhœa, chronic dysentery, etc. The *berries*, made into a jelly, form a good remedy in dysentery, and fresh are a healthy article of diet to invalids.

ROSA CAROLINA, *Linn.*, (Swamp Rose.) R. LUCIDA, *Ehrh.*, (Dwarf Wild Rose.) R. BLANDA, *Ait.*, (Early Wild Rose.) R. RUBIGINOSA, *Linn.*, (Sweet Briar.) The petals might be used to form a mild, laxative syrup, while the roots are moderately astringent. They should be further investigated.

CRATÆGUS,† *Linn.*, (Thorn Tree.) Five species. OXYACANTHA, *Linn.*, (Hawthorn.) CRUS-GALLI, *Linn.*, (Cockspur Thorn.) COCCINEA, (White Thorn.) TOMENTOSA, *Linn.*, (Black Thorn.) PUNCTATA, *Jacq.*, (Common Thorn.) The fruit of some of these are edible. The bark is sometimes substituted for that of the *Rhamnus Cath.*, in making *Syrup of Buckthorn*. A useful shrub for making hedges.

PYRUS, *Linn.*, (Apple. Pear.) P. CORONARIA, (Crab Apple.) Fruit yellowish-green, hard, very acid and fragrant. Juice forms a good gargle in sore throat.

PYRUS ARBUTIFOLIA, *Linn*, (Chokeberry.) A shrub-fruit, size of a large whortleberry. Sweetish, but very astringent. Two varieties, one *white*, the other *black*.

LYTHRACEÆ, *Juss.*—(THE LOOSE STRIFE TRIBE.)

LYTHRUM HYSSOPIFOLIA and SALICARIA, *Linn.*, (Purple Loose Strife.) Contains tannin and much mucilage, hence astringent and demulcent; popular in dysentery and diarrhœa.

ONORACEÆ, *Juss.*—(THE EVENING PRIMROSE TRIBE.)

OENOTHERA BIENNIS, *Linn.* FRUTICOSA, *Linn.* LINEARIS, *Michx.* CHRYSANTHA, *Michx.*, and PUMILA, *Linn.*, (Evening Primrose,

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* From the Celtic, *rub*, red, the color of the fruit in many of the species.
† From the Greek, *kratos*, strength, in allusion to the wood.

Cure-all, etc.) The *Biennis* is chiefly used in medicine. Bark and leaves mucilaginous, slightly acrid. Dr. Griffith states that he has cured infantile eruptions, as tetter, with a decoction of this plant, when all other means had failed. (*Med. Bot.* p. 304.) He directs a strong decoction, with which the parts affected are to be bathed several times a day. Forms a good emollient in ulcers.

LYTHRUM HYSSOPIFOLIA, *Linn.*, (Common Purple Loose Strife.) The whole plant demulcent and astringent; useful in diarrhœa and chronic dysentery. Decoction of the root (℥ i. to oj.) the best form of exhibition, in doses of ℥ ij., three times a day. A useful remedy.

CACTACEÆ, *Juss.*—(THE CACTUS TRIBE.)

OPUNTIA VULGARIS, *Mill.*, (Prickly Pear.) Common around New-York and on Long Island. Fruit two inches long. A rubefacient and vesicant.

GROSSULACEÆ, *De Can.*—(THE CURRANT TRIBE.)

RIBES, (Currant and Gooseberry.) Five species. CYNOSBATI, (Prickly Gooseberry.) ROTUNDIFOLIUM, (Round-leaved Gooseberry.) LACUSTRE, (Swamp Gooseberry.) FLORIDUM, (Wild Black Currant.) PROSTRATUM, (Fetid Currant.) Currant juice is laxative, refrigerant and antiseptic. Its wine contains 20 per cent. of alcohol. The black currant is astringent.

SAXIFRAGACEÆ, (THE SAXIFRAGE TRIBE.)

HEUCHERA AMERICANA, (Common Alum Root.) A powerful astringent. An extract from the roots of this plant, would probably be equal to that of the Rhatany or Catechu. The basis of some of the *cancer* powders of empirics. Employed by the Indians as an application to wounds and ulcers.

HAMAMELACEÆ, *R. Brown.*—(WITCH HAZEL TRIBE.)

HAMAMELIS VIRGINICA, *Linn.*, (Witch Hazel.) The bark of this plant has a bitter, astringent, somewhat sweetish and pungent taste. Is employed by the Indians as a sedative and discutient to painful tumors, and external inflammations. It is a popular remedy in the shape of a poultice or decoction, in hemorrhoidal and ophthalmic affections; also infusion of leaves in bowel complaints and hemorrhages. Seeds are edible, like the hazelnut. Deserves further trials. Erroneously supposed to have the power of indicating water and ores.

CRASSULACEÆ, *Juss.*—(THE HOUSE LEEK TRIBE.)

SEDUM, *Linn.*, (Stone Crop.) P. TELEPHIUM, *Linn.*, (Orpine, or Live Forever.) An astringent demulcent. A popular remedy in dysentery and hemoptisis; also as a vulnerary. Formerly employed externally to cicatrize wounds.

UMBELLIFERÆ, *Juss.*—(THE UMBELLIFEROUS TRIBE.)

This well known order furnishes many medicinal plants, differing, however, in their properties. They are all furnished with a volatile

oil or balsam; which, in the fruit, is lodged in longitudinal canals (*vittæ*) in the carpels; some furnish gum-resins, and a few are pervaded in every part with an alkaloid, acro-narcotic principle. Many species are used as articles of food, and still more are medicinal.

Sanicula Marilandica, *Linn.*, (Long-styled Sanicle.) S. Canadensis, *Linn.*, (Canadian Sanicle. Black-snake Root.) Under which latter name they are employed as domestic medicines, as diaphoretic, stimulant and stomachic. They deserve further examination.

Cicuta Maculata, *Linn.*, (Water Hemlock. Spotted Cowbane.) Common in swamps. The most dangerous vegetable poison indigenous to the U. States, often mistaken by children for the root of *Sweet Sicily*, (*Osmorhiza longistylis*,) called *Beaver Poison* and *Musquash* in the western part of the State. Causes the usual symptoms of the *acro-narcotics*. The whole plant poisonous, but the root most active. Has a strong aromatic taste and odor, and the bark contains a yellowish, viscid juice. Seldom employed in practice, but is occasionally given as a sedative, and to relieve pain in scirrus and cancer.

Heracleum Lanatum, *Michx.*, (Masterwort. Cow Parsnip.) Root has a strong, disagreeable odor and acrid taste. The leaves and root stimulate the skin, when applied to it. Poisonous when growing in damp places. In medicine, it is stimulant and carminative. Has been used with success in epilepsy, attended with flatulence and gastric disorder. (*Thatcher's Dispensatory.*)

Archangelica Atropurpurea, (Common Angelica.) The root contains bitter extractive, gum, an acrid soft resin, volatile oil, etc. An aromatic stimulant and tonic. *Vittæ* filled with a pungent and rather disagreeable aromatic oil. A popular aromatic tonic and carminative, used in flatulent colic and cardialgia. The stems are sometimes candied as sweetmeats. In a recent state, the root is acrid, and said to be poisonous.

Daucus Carota, *Linn.*, (Wild Carrot.) An indigenous plant. A very powerful diuretic. A strong decoction, drunk freely, very useful in nephritic complaints, and in the passage of urinary calculi. For gravel, the patient should drink copiously of a strong infusion, warm. A useful remedy.

Conium Maculatum,* *Linn.*, (Poison Hemlock.) The leaves and seed contain resin, extractive, gum, albumen, a green fecula, saline matters, and two volatile substances; one an *oil*, on which the odor of the plant depends; the other an alkaline principle, *conia, conine, conicene*, etc. This is the active principle of the plant, and is a colorless oily liquid, lighter than water, and causing death almost as soon as hydrocyanic acid. (See *Wood & Bache.*) Narcotic, without being decidedly stimulant or sedative to the circulation. Generally believed to possess anodyne, antispasmodic, antiphrodisiac, deobstruent and diuretic properties. Has no curative virtues in scirrhus or cancer, though decidedly palliative.

Panax Quinquefolium, *Linn.*, (Common Ginseng.) A favorite article among the Chinese, forming an ingredient in nearly all their

* The *koneion* of Theophrastus, from *konos*, a cone or top, whose whirling motion resembles the giddiness produced by this plant.—*Hooker.*

prescriptions; formerly exported in large quantities to Canton, from this country. The root, which is fleshy, and spindle-shaped, has a feeble odor, and a sweet, slightly aromatic taste, like liquorice. Has no other medicinal properties than those of a mild and pleasant demulcent.

Cornus Florida,* *Linn.*, (Common Dog Wood.) A valuable tonic and astringent; its properties closely resemble those of the Peruvian bark. Has been used with success in intermittent and typhoid fevers. May be given in powder, decoction, or extract. *Decoct.*, officinal.

C. Alternifolia, *Linn.*, (Alternate-leaved Dog Wood.) The bark of this species forms one of the *Shaker medicines;* is diaphoretic, tonic and astringent.

C. Circinata, *Linn.*, (Round-leaved Dogwood). Possesses similar virtues to the *Florida*, used in same way; taste bitter, astringent and aromatic. The late Dr. Ives used an infusion made by pouring O j. boiling water on to ℥ j. of the coarsely powdered bark. Dose ℥ i. to ℥ ij.

C. Sericea, *Linn.*, (Swamp Dogwood). Possesses similar virtues to the above species. The same remark will apply to the *C. paniculata.*

Pastinaca Sativa, *Linn.*, (Common, or Wild Parsnip.) Esculent.

Osmorhiza Longistylis, *De Can.*, (Sweet Sicily.) A very pleasant carminative. Children often mistake the *Cicuta* for it.

To these indigenous plants may be added various cultivated exotics, as Carum, (Caraway.) Foeniculum, (Fennel.) Anethum, (Dill.) Cuminum, (Cumin.) Coriandrum, (Coriander,) etc., all useful carminatives, and some of them employed in domestic economy.

Araliaceæ, *Juss.*

Aralia Racemosa, *Linn.*, (Spikenard.) The root and leaves are in great repute as aromatic tonics. Usually taken in form of tincture.

A. Nudicaulis, *Linn.*, (Wild Sarsaparilla.) A well known medicinal plant, possessing gently stimulating and diaphoretic properties. A decided alterative, and useful in rheumatic, syphilitic, and cutaneous diseases. Prepared and given in the same manner as the genuine sarsaparilla.

A. Spinosa, (Angelica Tree. Tooth-ache Tree.) Cultivated in gardens as an ornamental shrub. A stimulant diaphoretic. An infusion of recent root, emetic and cathartic; used with advantage in chronic rheumatism and cutaneous affections.

Arabia Hispida, *Michx.*, (Wild Elder.) A valuable diuretic in dropsies, in decoction. (*Peck*, in *Am. Jour. Med. Sci.*, xix., 117.)

Sub-class II.—Monopetalous Exogenous Plants.

Caprifoliaceae, (*The Honey-suckle Tribe.*)

Triosteum Perfoliatum, *Linn.*, (Feverwort, Horse Gentian).—Cathartic, emetic, and diuretic. Powdered bark of root most active; in doses of xx grs. acts as cathartic, 30 to 40 emetic. Its active properties are taken up by water and alcohol. Extract purges in doses of

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* From the Latin, *cornus*, horn, from the hardness of the wood.

x grs.; 5 lbs. of the root produces 2 lbs. of extract. Leaves are diaphoretic. The hard seeds have been used as a substitute for coffee. This plant deserves further trials. (See *Wood* and *Bache*, p. 721).

Sambucus Nigra, *Linn.*, (Common Elder). Inner bark aperient and deobstruent, also emetic in large doses. Infusion of flowers diaphoretic. Elder ointment is a soothing application to ulcers, burns, etc. The berries furnish a juice, which diluted with water, forms a cooling and laxative drink in fevers. Wine of the berries is an excellent cordial, much used in domestic practice.

Viburnum Prunifolium, *Linn.*, (Black Haw-Sloe). Fruit one-third of an inch long, bluish black, and slightly glaucous when mature. The *fruit*, when mature, is sweetish and esculent.

Vib., Lentago, *Linn.*, (Sweet Viburnum). A tree 15–20 feet high. Fruit rather larger than the preceding species, bluish black, with a glaucous bloom; the pulp thin and sweetish. The fruit is sweet and esculent after the action of frost.

Vib., Dentatum, *Linn.*, (Arrow Wood), 10 to 12 feet high, used by the aborigines for making arrows—also for *fuse-sticks* in blasting, the pith having been removed.

Vib., Pauciflorum, *Syl.*, (Mountain Bark Cranberry), from two to four feet high, fruit roundish oval, compressed, red.—Mountains of Essex county.

Vib., Opulus, *Linn.*, (Bush Cranberry, High Cranberry), from 3 to 10 feet high. The fruit is acid, half an inch long, juicy, slightly bitter, translucent when dry, used as a substitute for cranberries. Common *snow-ball* is a variety of this species.

Rubiaceæ, *Juss.*, (The Madder Tribe).

Galium* Aparine, *De Can.*, (Common Cleavers or Goose Grass). An annual succulent plant, inodorous, has a bitterish and somewhat acrid taste. Expressed juice aperient, diuretic, antiscorbutic; has been used in dropsy, congestion of spleen, scrofula, and scorbutic eruptions; ℥ iij. of the juice twice a day; also used as an ointment to scrofulous swellings. We have several other species of galium possessing the same medicinal properties. Probably one of our most valuable diuretics, highly useful in suppression of urine and nephritic complaints; has considerable popular reputation in scorbutus and hemoptysis; also in gonorrhea and inflammatory affections of the kidneys; cold infusion should always be employed, drank freely.

Cephalanthus Occidentalis, *Linn.*, (Button-bush, Pond Dogwood). Tonic and deobstruent. Deserves further trial.

Mitchella Repens, *Linn.*, (Partridge Berry). Berries one-third of an inch in diameter; edible, but insipid. Slightly diuretic and alterative.

Valerianaceæ, (The Valerian Tribe).

Valeriana† Sylvatica, (Tall Swamp Valerian.) This plant is closely allied to the *dioica*, and possesses similar medicinal properties,

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* From the Greek, *gala*, milk, one of the species having been used to curdle milk.
† From the Latin *valeo*, to be strong, from its supposed virtues.

acting as a stimulant and antispasmodic; useful in hysteria, in form of infusion or powder of root—contains considerable volatile oil, to which it owes its effects.

COMPOSITÆ, *Linn.*, (THE COMPOSITE TRIBE).

LIATRIS SPICATA, *Willd.*, (Tall Button Snakeroot) An indigenous perennial plant, has a tuberous root, possessing a terebinthinate odor, and a warm, bitter taste. Is tonic, diaphoretic, alterative and diuretic; decoction has cured gonorrhea; forms useful gargle in sore throat; useful in gravel, scrofula, and dropsy; one of the *Shaker medicines*. We have several species of this plant. All that have tuberous roots appear to be diuretic.

EUPATORIUM* PURPUREUM, *Linn.*, (Joe Pye Weed). This well-known plant, sometimes called *gravel-weed*, has a bitter, aromatic, and astringent taste, and is diuretic and diaphoretic; is a popular remedy for the cure of *gravel*.

E. PERFOLIATUM, *Linn.*, (Boneset, Thoroughwort). Tonic, diaphoretic; in large doses, emetic and aperient; useful in colds and the commencement of fevers, to induce sweating; also in hot decoction in the cold stage of intermittents. The cold decoction to be given during the intervals. Its diaphoretic properties are most important, though it is given with benefit in general debility, dyspepsia, and where simple, bitter tonics are indicated.

E. TEUCRIFOLIUM, (Wild Horehound). Less bitter and disagreeable than the last, though nearly equally medicinal. Tonic, diaphoretic, diuretic, and aperient; used successfully in intermittents. We have *eight* species of *eupatorium* growing in the State of New-York, all of which possess similar properties.

The *E. Aromaticum* (*sweet-scented Hemp weed,*) the *E. Ageritoides*, (*White Snake-root,*) and several other species of this plant, possess similar properties.

TUSSILAGO,† FARFARA, *Linn.*, (Common Coltsfoot). A well-known and popular emollient, demulcent and tonic—and in pulmonary affections, acute and chronic. Its expectorant properties are slight. Cullen recommends the expressed juice in scrofula. Usual form of administration is decoction; ℥ ij. of the plant boiled in O ij. to one. The leaves, flowers and root are all used. The latter is bitter, as well as mucilaginous. The "*Essence of Coltsfoot,*" is a balsam dissolved in alcohol, and often injurious. The dried leaves are sometimes smoked for the relief of asthma.

ASTER,‡ *Tourn.* We have twenty-six known species of Aster growing in this State, some of which have valuable medicinal properties. Those which have aromatic roots are stimulant, diaphoretic, diuretic, and antispasmodic; the *Novae-Angliae* is employed, in decoction, as an external application in cutaneous eruptions.

ERIGERON, *Linn.*, (Fleabane). E. CANADENSE, *Linn.*, (Horse Weed). E. BELLIDIFOLIUM, *Muhl.*, (Poor Robert's Plantain). E. PHILADELPHICUM, *Linn.*, (Philadelphia Fleabane). E. ANNUUM, *Pers.*,

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* From *Eupator*, king of Pontus, who used this plant as a medicine.
† From the Latin, *tussis*, cough, for which the plant is used.
‡ From the Greek, *aster*, a *star*, the shape of the flower.

(Sweet Scabious Daisy). E. Strigosum, *Muhl.*, (Fleabane Daisy.) All the above species are diuretic, tonic, astringent, and antilithic. They have been employed successfully in nephritic and dropsical complaints, as hydrothorax. The *Canadense* is astringent in perhaps a greater degree than the others, and was employed by the late Dr. Dupuy, of this city, in diarrhœa, dysentery, and other profluviæ, in form of infusion and decoction, extract and tincture. We prefer the *Canadense*, although the other species are highly medicinal. Dr. Williams speaks highly of this plant, in the *New-York Journal of Medicine*, vol. 7, p. 36–7. It deserves more frequent use. *The Annuum*, (*Sweet Scabious Daisy, etc.*,) is one of the Shaker remedies, and is a very valuable diuretic and astringent. It has a considerable reputation as an alterative; a syrup of it promotes expectoration in dry coughs, and it is a decided emmenagogue.

Solidago,* *Linn.*, (Golden Rod). Out of sixty species of this plant, growing in the United States, New-York furnishes at least twenty-five, some of which are valuable medicines.

S. Odora, *Ait.*, (The Sweet-scented Golden Rod), which has flowers of a deep, golden yellow color, is aromatic, carminative, and stimulant; diaphoretic when given in warm infusion, and successfully to allay pain from flatulence; to allay nausea, and cover the taste of unpleasant medicines usually given for these purposes in infusion. The *vol., oil* is also used. The dried flowers form a good substitute for *tea*. It is also astringent, and has lithonthriptic properties. The bruised leaves exhale the odor of anise-seed, and yield by distillation a fragrant volatile oil, which is used as a remedy for flatulence and to allay nausea.

Solidago Virga-Aurea, *Linn.*, (Common Golden Rod). The flowers are aperient, diuretic and tonic; the leaves gently astringent; a useful remedy in nephirtic complaints and suppression of urine, in form of infusion made of the flowers. An infusion of the leaves is useful in general debility and chronic fluxes, as diarrhœa and dysentery, leucorrhea, etc.

Inula Helenium, *Linn.*, (Common Elecampane). A naturalized plant, contains a peculiar principle, analogous to starch, called *inulin;* a white concrete substance called *heleine*, intermediate in its properties between the essential oils and camphor, also bitter extractive, a bitter resin, gum, albumen, lignin, wax, vol. oil, saline matters, etc. Elecampane is tonic and gently stimulant; has diaphoretic, diuretic, emmenagogue, and expectorant properties; chiefly employed in chronic pulmonary disorders; also a popular remedy in cutaneous disorders. Given in powder and decoction.

Pluchea Camphorata, *De-Can.*, (Sea-side Marsh Fleabane). A strong-scented plant, growing near the sea-side, exhaling an odor of camphor, a useful stimulant, and powerful antispasmodic, diaphoretic and diuretic.

Rudbeckia Laciniata, *Linn.*, (Thimble Weed). Diuretic, balsamic, useful in nephitic diseases, especially albuminaria. Given freely in decoction.

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* From the Latin, *solido*, to make firm, in allusion to its supposed vulnerary qualities.

Helenium* Autumnale, *Linn.*, (Sneeze Weed). All parts of this plant are bitter, and somewhat acrid; has been used as a sternutatory or errhine, in form of powdered leaves and flowers. It is also tonic and diaphoretic, and is recommended in intermittents. As an errhine, Griffith says, it is not equal in power to the *Asarum*, or the brown powder of the kalmia, but is useful where these cannot be procured.

Maruta Cotula, *De Cand.*, [May Weed]. A troublesome weed, introduced from Europe; has a strong, unpleasant smell, and an acrid, bitter, and nauseous taste. The whole plant is officinal. It is tonic, diaphoretic, emetic, and very similar to chamomile in its medicinal properties. It might be employed in some cases with equal benefit, if its taste was not so unpleasant. The fresh plant bruised and applied to the skin, vesicates; but the blisters readily heal.

Anthemis† Arvensis, *Linn.*, (Wild Chamomile). This plant resembles the common chamomile in its medicinal effects, and is used in place of it in Germany. The flowers have an acrid taste, but no smell. Tonic and anthelmintic.

Achillea‡ Millefolium, *Linn.*, (Common Yarrow). The whole herb medicinal. The flowers and leaves have a pleasant, aromatic odor, and a bitter, astringent, pungent taste; contains vol., oil, bitter extractive and tannin, to which its virtues are owing; active principles extracted by water and alcohol. A mild aromatic and astringent, used in Sweden in place of hops in brewing beer; useful in intermittents, diarrhœa, general debility, and nervous affections. Infusion the best form of administration. The *vol. oil* is also given in a dose of 20 to 30 drops.

Helianthus Tuberosus, *Linn.*, (Jerusalem Artichoke). Cultivated in gardens for the firm fleshy tubers at the root, which are pickled and used as a condiment.

H. Annuus, *Linn.*, (Common Sun Flower). Seed yield a valuable oil, useful for lamps; also has medicinal properties.

Tanacetum§ Vulgare, *Linn.*, (Common Tansey). A well-known domestic tonic, stomachic, and anthelmintic, useful in atonic dyspepsia, hysteria, and intermittents; also in amenorrhea; and the oil is often taken to produce abortion. The *seeds* are most effectual as a vermifuge. Dose of the powder from ʒ ss. to ʒ i., two or three times a day; infusion is the best form. For a fatal case of poisoning by the oil, see *Am. Jour. Med. Sci.* (16, 256).

Artemisia,‖ *Linn.*, (Worm Wood). We have three species of this plant, viz. the *Canadensis*, the *Caudata*, and the *Vulgaris*; all of which are bitter tonics, and might be employed where such medicines are indicated. They are anthelmintic, stomachic, and antispasmodic, and owe their virtues to an essential oil.

Gnaphalium¶ Polycephalum, *Michx.*, (Life Everlasting Bal-

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* Named after *Helen*, wife of Menelaus, who used this, or a similar plant, as a *cosmetic*.

† From the Greek, *anthemis*, flower.

‡ Named after *Achilles*, a disciple of Chiron.

§ Name altered from the Greek *athanasia*, *a*, not, and *thanatos*, death, because its flowers are lasting.

‖ From *Artemis*, the *Diana* of the Greeks.

¶ From the Greek, *gnaphalon*, soft down, or wool.

sam). A sweet-scented plant, employed as a popular remedy in dysentery and other bowel affections; an infusion of it is also used in pulmonary and hemorrhagic affections; and externally, as a fomentation, in bruises, local swellings, and tumors.

Erechtites Hieracifolius, *Raf.*, (Fire-weed). The whole plant has a rank, nauseous odor, and a disagreeable, bitterish taste. In large doses, emetic—employed in diarrhœa; the essential oil is recommended for piles; and externally, fomentations with the bruised plant, in cases of contusions, wounds, ulcers, etc.

Cacalia Atriplicifolia, *Linn.*, (Indian Plantain). The leaves are sometimes used as an application to wounds.

Senecio* Aureus, *Linn.*, (Life Root, Squaw Weed). This plant is sometimes called *Gravel Root*, and by the Indians *Nun-qua*. It is a certain diuretic and diaphoretic; it increases the force of the circulation, without producing any febrile symptoms; is particularly useful in cases of anemia, attended with cold extremities, and feeble circulation; a powerful emmenagogue, when given in form of the warm infusion; also antispasmodic, particularly recommended where the capillary circulation is feeble. (*Graham*, in *N. York Jour. of Med.*, vol. 3, p. 366).

Arnica Mollis, *Hooker*, (Soft Arnica). According to Dr. Thomson, (*Lond. Disp.*), the European species, (*Montana*), contains an *igasaurate of strychnia or brucia*, to which it owes its medicinal power. It has proved successful in intermittents, and is used with benefit in palsy, tumors and amaurosis. Some of the American species, according to Hooker, (*Am. Bor.*, p. 330), approach so very closely to the *Montana* in their characters, as to be varieties of it. It is worth investigating whether the *A. Mollis*, which is found in Essex county and some other parts of the State, does not possess the same virtues, and may be substituted for the European plant.

Centaurea† Cyanus, *Linn.*, (French Pink). Cnicus,‡ *Vaill.*, (Blessed Thistle). Carduus Benedictus, (Common Blessed Thistle). An annual herbaceous plant, with yellow flowers, naturalized. The leaves, gathered when in flower, contains a *vol. oil*, and a peculiar principle, *onicin*, crystallizable and very bitter, analogous to *salicin* in composition and effects. The plant tonic, diaphoretic, emetic—cold infusion as a mild and certain tonic; the hot decoction, a good diaphoretic; and in large doses, emetic. The medicinal properties closely resemble those of the chamomile.

Lappa§ Major, *Goert.*, (Burdock). A well-known naturalized plant. The *root* has a mucilaginous and sweetish taste, with slight degree of bitterness and astringency; contains *inulin* and *sugar*; *seeds* aromatic, bitterish, and acrid; aperient, alterative and sudoriic—one of our very best deobstruents. The infusion of root is a domestic remedy for colic and nephritic complaints, and the leaves applied externally for cutaneous eruptions. The ashes afford much potash. This article

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* So named from *Senex*, an old man.

† The *Centaur*, *Chion*, is said to have cured himself of a wound received from Hercules, with this plant.

‡ From the Greek, *knizo*, to prick or wound.

§ From the Celtic word *llap*, because it lays hold of every thing near it.

may be used with perhaps as much advantage as sarsaparilla, in syphilitic, rheumatic, nephritic, scrofulous, and cutaneous diseases, in form of decoction, made of ℥ ij. recently bruised root in O iij. water, boiled to two, a pint to be taken in 24 hours. Seeds are a useful diuretic, in doses of ʒj. in emulsion, or powder.

Cichorium Intybus, *Linn.*, (Wild Succory, or Chicory). A plant mentioned by Dioscorides, used very anciently in hepatic obstructions. The whole plant bitter without acrimony; taste astringent in root; young leaves sometimes eaten as salad; gently tonic, aperient, and deobstruent; useful, freely taken in hepatic congestion, jaundice, and other visceral obstructions; also in pulmonary affections—strong decoction preferable, used freely; the root, dried and roasted, is sometimes used as a substitute for coffee, also to flavor or adulterate it. The *garden endive* is a species of this plant.

Hieracium* Venosum, *Linn.*, (Rattlesnake Weed). One of the numerous plants said to be an antidote to the bite of the rattlesnake. The *scabrum* exudes a milky juice, and probably would be found a useful medicine.

Nabalus Albus, *Tor. & Gr.* (The Prenanthes of Linneus, Rattlesnake's Root, White Lettuce, etc.) Another supposed specific for the bite of venomous serpents.

N. Fraseri, *De. Can.*, (Gall of the Earth). Root intensely bitter; tonic and deobstruent; diuretic? also recommended for the bite of the rattlesnake.

Taraxacum† Dens-Leonis, (Common Dandelion). Diuretic, tonic, aperient, and alterative; useful in hepatic and other visceral engorgements, and derangements of digestive organs; it increases the secretion of bile, in torpid conditions of the organ, but is contraindicated in cases of irritation or inflammation of stomach and bowels. Given in form of extract, or decoction. Soda increases its activity, and aromatics correct its tendency to produce griping or flatulence. *Off. U. S. P.*

Lobeliaceæ, *Juss.*, (The Lobelia Tribe).

Lobelia Inflata, *Linn.*, (Indian Tobacco). An acrid narcotic; diaphoretic, expectorant, emetic, and cathartic; an infusion causes speedy and severe emesis, attended with long continued and distressing nausea, copious sweating, and great, general relaxation. In large and repeated doses it causes inflammation of the mucous membrane of the stomach and bowels, and death, attended with the usual symptoms of the acro-narcotic poisons. Too violent and distressing in its effects for ordinary use. Tincture useful in asthma, and as an expectorant, with laudanum or ipecac. Much abused by Thomsonians and other quacks. Contains a peculiar principle, *Lobelina*. *Off. U. S. P.*

L. Cardinalis. Medicinal properties somewhat similar to those of *inflata*, but less active; supposed to be useful as a remedy for worms.

L. Syphilitica. Emetic, cathartic, and diuretic. Same remarks apply to this species.

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* From the Greek, *hierax*, a hawk; the ancients supposed the hawk, and other birds of prey, used the juice of this plant to sharpen their sight.

† From the Greek, *tarusso*, to disturb.

L. Claytoniana. Said to be a good diuretic. (See Williams, in *New-York Jour. of Med.*, vol. 7, p. 175). Seven species grow in the State of New-York.

Ericaceæ, *Endl.*, (The Heath Tribe).

Arctostaphylos* Uva Ursi, *Spreng*, (Bear-berry). The *uva ursi* of the shops, a low evergreen shrub, with trailing stems, gathered in autumn; the leaves taste bitterish, strongly astringent, ultimately sweetish; contain tannin, resin, gum, extractive, and gallic acid; tannin abounds to that extent that they are sometimes used in tanning leather; active principles soluble in water and alcohol; astringent, tonic, diuretic, antilithic, and lithontriptic, exerts a direct and specific influence on kidneys and urinary organs; useful in diseases of bladder and kidneys, as nephritis, calculus, catarrh of bladder, or urethra, incontinence of urine, gleet, leucorrhea, hemorrhagia, diabetes, etc. Also in all passive hemorrhages, in decoction or powder. (*Offi. U. S. Phar.*) I found this plant in great abundance on the shores of Lake Superior, where it is smoked with tobacco by the Indians, under the name of "*Kinnikinnick.*"

Epigaea† Repens, *Linn.*, (Trailing Arbutus). This plant has the same medicinal virtues as the *uva ursi*, and might be substituted for it. It is a popular domestic remedy for gravel, and is put up and sold by the Shakers under the name of *Gravel Plant.*

Clethra Alnifolia, *Linn.*, (Sweet Pepper Bush). A diaphoretic, stimulant, fragrant, the leaves and flowers; a handsome plant growing in swamps and thickets in the south part of the State.

Gautiera‡ Procumbens, *Linn.*, (Partridge Berry). A well-known, small, shrubby, indigenous, evergreen plant. The leaves and whole plant possess aromatic properties, similar to *sweet birch*, which reside in a volatile oil; the leaves contain much *tannin*, and are astringent—a cordial stimulant, united with astringency—adapted well to cures of chronic diarrhœa; chiefly used to impart an agreeable flavor to other preparations. The *oil* or infusion may be used—has been employed successfully as an emmenagogue. (*U. S. P.*). The oil is sold under the name of *Oil of Wintergreen.* Berries are edible, and have a very pleasant flavor. The oil is recently ascertained by M. Cahours to be a *salycilite of the oxide of methyl*, and composed of an acid called the *salycilic*, (hitherto found only in the oil of spirea,) united with the ether of wood-spirit, (*Methylic Ether*).

Andromeda§ Polyfolia, *Linn.*, (Sorrel Tree, Sour Tree, Andromeda, etc.).

A. Arborea. *Schoepf* states that this species is found in this State, though not mentioned by Torrey. The leaves and wood contain malic acid, with tannin, and hence form a useful combination in many cases of disease. Rafinesque says they form a refreshing, cooling, anti-febrile drink, allaying thirst, etc.; useful where a refrigerant astringent is needed; very similar to the fruit of the *Rhus Glabrum* or *Sumac.*

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* From the Greek, *arktos*, a bear, and *staphyle*, a grape.
† From the Greek, *epi*, upon, and *ge* the earth—prostrate.
‡ Named after *Dr. Gautier*, a French physician of Quebec.
§ No allusion to the fable of Andromeda.

A. Mariana, *Linn.*, (Kill Lamb, Stagger-bush). A species supposed to be poisonous to lambs and calves, producing a disease called the staggers; a decoction is said to be useful as a wash in ulcers.

Rhododendron,* *Linn.*, (Rose Bay). We have seven species indigenous of this beautiful genus growing in the State of New-York, under the names of *Great Laurel*, *Wild Honeysuckle*, etc. Their medical properties have never been investigated, so far as we know, although they richly deserve it. If we mistake not, like the *Rhododendron Chrysanthemum* of Siberia, some of the species will be found to have valuable stimulant, diaphoretic, and narcotic properties, and prove valuable remedies in the treatment of rheumatism, palsy, gout, etc.

Kalmia† Latifolia, *Linn.*, (Laurel, Calico-bush). Leaves, narcotic, poisonous. Sheep, and some other animals, are occasionally poisoned by eating the leaves of this plant. Barton says that the flesh of partridges and pheasants that have fed on the leaves in winter, has often caused symptoms of poisoning and even death. Not employed in medicine. Dr. Barton says he has seen 20 grains of the recently powdered leaves given at once without perceptible effect.

K. Angustifolia, (Dwarf Laurel, Sheep Laurel). K. Glauca, (Swamp Laurel). Both of these species possess the same qualities as the *latifolia*.

Ledum Palustre, *Linn.*, (Labrador Tea). The *leaves* have an aromatic, balsamic odor, and bitter taste; contain vol. oil and tannin; tonic, astringent, and slightly narcotic; decoction of leaves is used as a wash, and internally in cutaneous affections, attended with irritation and itching; also in diarrhœa and dysentery; used in Germany, in brewing, as a substitute for *hops*. This plant was used as a substitute for tea, during the revolutionary war.

Vaccinium Corymbosum, *Linn.*, (Tall Swamp Huckleberry). Berry nearly one-third of an inch in diameter, dark blue, coveredwith a bloom, sub-acid and well-flavored.

V. Pennsylvanicum. (Dwarf Blue Huckleberry). Berries large, bluish black, covered with a glaucous gloom, sweet and well-flavored.

V. Vaccillans. (Low Blue Huckleberry). Berries dark blue, glaucous, very sweet and well-tasted.

V. Uligniosum. (Alpine Bilberry). Berries deep blue; at sources of the Hudson.

V. Canadense, *Kalm.* (Black Bilberry). Berries bluish black, sweet and palatable. (Swamps in certain parts of the State).

V. Stamineum, *Linn.*, (Deer Berry, Squaw Huckleberry). Berry large, globose, somewhat pyriform, usually greenish, but sometimes purplish, of a bitterish and somewhat astringent taste, but not unpleasant when fully ripe.

All the above species are nutritious and palatable as food, and constitute a very healthy article of diet to invalids, either in their fresh state or made into a jelly.

Vaccinium Oxycoccos, *Linn.*, (Small Cranberry). V. Macrocarpon, *Ait.*, (Common Cranberry). Both of these species are extensively used as sauce, and as a nutritious diet and drink in febrile dis-

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* From the Greek, *rhodon*, a rose, and *dendron*, a tree.

† In honor of *Peter Kalm*, a Swedish botanist.

eases. A drink made of cranberry jelly is extremely refreshing and antifebrile.

Gaylussacia* Hirtella, *Torrey & Gray.* (Dwarf Swamp Huckleberry). Fruit black and shining when ripe, glandularly pubescent, watery and rather insipid.

G. Frondosa. (Blue Tangle, Dangle Berry). Fruit large, globose, sweet and well-flavored.

G. Resinosa, *Torrey & Gray.* (Black Huckleberry). Fruit slightly acid, but agreeable.

Same remarks apply to these, as to the former species of this esculent and healthy fruit.

Chimaphilla† Umbellata, *Nutt.* (Pipsissewa, Prince's Pine). A well-known evergreen, tonic, diuretic, astringent, antilithic and lithonthriptic; employed by the Indians in scrofula, rheumatism, and nephritic diseases; useful in dropsy; in broken-down habits, its medicinal properties are similar to those of the *uva ursi*, adapted to same cases of disease; an excellent tonic in simple debility of digestive organs; good alterative in cutaneous affections and scrofula.

C. Maculata, *Pursh*, (Spotted Winter Green). Properties similar to the umbellata; both contain extractive, gum, resin, tannin, saline matters, etc.; bitter, astringent, and sweetish to the taste; but slightly aromatic.

Art. II.—*Abstract of a Letter from* Dr. N. S. Jarvis, Surgeon, U. S. Army, embracing several Surgical Cases which fell under his Treatment and Observation.—(Continued from p. 151, Vol. S.)

Monterey, Mexico.

Dear Dr.—In continuation of the cases of wounds received in the assault on Monterey, on the 21st of September last, a few of which were briefly described in a letter, and published in your Journal of March, I wish to add another, in some respects interesting from its peculiar character and extent.

Case 1.—Private Rook of "H" Company, 3d Infantry, U. S. Army, was wounded on the morning of that day, and as in the case of Redvill of the same regiment, by what he supposed at the time a fragment of stone, broken from the wall of a house he was passing at the time, by a cannon ball or shell. The wound was directly over the right eye, and immediately above the superciliary ridge into the frontal sinus, fracturing the bone for the distance of an inch, and the whole length of that cavity. Considerable inflammation of the surrounding parts, with intumescence of the upper eyelid ensued, followed by suppuration, and the discharge, at different times, through the opening of the wound and the right nares, of numerous small fragments of bones. Some more of considerable size were removed from the sinus by the aid of a common forceps. Nothing, however, could be discovered by a probe at the time within the cavity. The man's general health was good, and seemed to be little impaired by the wound he had received; and with exception of slight occasional pain in the forehead, complained of

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* From *Guy Lussac*, the French chemist.

† From the Greek, *cheima*, winter, and *phileo*, to love.

nothing, walking about as usual, and eat and drank with his accustomtomed appetite. Both the wound and the discharge from it appeared perfectly healthy, granulating kindly, and presenting every appearance of a speedy and final cure. I should have remarked above, that on probing the cavity of the frontal sinus shortly after he was wounded, and detecting no foreign substance lodged within, the impression of myself and others, as well as the patient himself, was, that the missile, whatever it might be, had glanced off. Neither did I discover at the time any penetration or passage through the posterior wall of the frontal sinus. The wound, however, subsequently proved more tedious and troublesome than was expected: at one time nearly healing up, when it would become suddenly inflamed, break open again, and discharge small fragments of bone. In this manner the complete healing of the wound was protracted up to the time I was temporarily separated from the charge of the general hospital, a period altogether of four months. On my return I learned, much to my surprise, that Rook had died a few days before. During the interval of my absence, I understood he had gone on as usual, his wound presenting no unusual appearance, occasionally, as heretofore, discharging small particles of bone, and then partially closing, but at no time exciting or attracting the particular notice of the surgeon, or care of the attendant in the ward. A few days previous to his death, in consequence of too freely indulging in some intoxicating drink, he fell, and struck the wound with considerable force, on the ground. Something like an epileptic fit followed, which was shortly succeeded by several others, and which occurred, with occasional intervals, nearly up to the time of his death. Considerable inflammation of the wound in like manner ensued as a consequence of the fall. On examination, the point of some hard substance was discovered through the pus at the inner angle of the wound, near the junction of the nasal with the orbital process, and at the point of termination of the superciliary ridge. This, on extraction, proved to be a musket-ball over an ounce in weight, considerably flattened, and roughened on its surface; and imbedded nearly or quite one-eighth of an inch into the substance of the lead, was a portion of what appeared to be the inner table of scull, three-quarters of an inch in length and nearly the same in breadth. This, however, in the extraction, was broken off, leaving a portion of the bone firmly impacted in the ball. The removal of the ball, contrary to expectation, instead of proving a favorable circumstance, was followed shortly by coma, which continued until his death, some four days from the time he fell and received the additional injury, and two days after the extraction. The question naturally arises in this case, where could the ball have been lodged all this time. I have stated that the probe did not detect its presence within the cavity of the frontal sinus, and its size seems to preclude the possibility of its lodging there. It must have therefore passed through the posterior wall of the cavity, and lodged over the roof of the orbit between it and the anterior hemisphere of the brain of that side; and the singularity is, that if in this position, it should have produced so little cerebral disturbance, or in fact any symptoms indicative of the presence of a foreign body in immediate contact with that organ. After his death a probe was passed with ease, and little or no resistance, its whole length through the opening made by the ball directly into the cavity of the scull and along the base of the brain. The absence of all resist-

ance in the passage of the probe would indicate either an abscess extending that distance, or a remollissement or softening of the cerebral structure. Unfortunately, circumstances at the time did not afford leisure to the medical officer attending the case to make a post-mortem examination, and thus ascertain the exact condition of the parts together with the nature and extent of lesion, if any, of the brain. The only manner I can account for a probe not passing through the posterior wall of the frontal sinus during life, and before the extraction of the ball, must be from the fact, that the latter completely filled up or rested against the opening it had made, which subsequently by its removal left a hole equal to its own diameter, directly into the cavity of the brain.

While on the subject of wounds, and in connection with them, I will here recall your notice to a circumstance which proved extremely annoying at the time, and in some instances, of fatal consequence to the patient, which I have described in my former communication. I allude to the myriads of maggots that infected every wound dressed on the field, and which in an incredibly short period from the time of deposit of the ova of the fly, were burrowing and nestling in every part of it, requiring the greatest labor and perseverance to effect their complete expulsion, and which in some case was impossible. I little imagined at that time, that these formidable insects would actually invade during sleep the nasal passages and the mouth, and deposit their ova. Such has occurred recently here in two cases which fell under my observation. I shall report them now, more from their singularity than any practical benefit which can possibly be derived from a notice of them.

Case 2d.—Carpenter, a private of a company of Texan Rangers, was removed from the field hospital in camp to the general hospital in town, in consequence of repeated epistaxis or hemorrhage from the nose, which had occurred for several successive days, and was arrested with great difficulty at each time. His features were greatly swollen, with inflammation of the nose and adjacent parts. The man complained at the time of irritation, and something, as he described, moving in his nostrils. These, on examination, appeared, to be closed up, and the source of irritation revealed itself by the discovery of a large quantity of maggots, of a large size, filling each cavity and manifesting the greatest activity. On inquiry into the history of the case, I found that this man had, some days previous, after sleeping soundly during the day under the shade of a tree, been seized shortly afterwards by tickling and irritation in the nostrils, followed by inflammation and swelling of the nose internally and externally; and subsequently, when ulceration took place, by hemorrhage. The first object in the treatment of the case was of course the expulsion of the worms, which were evidently the source, as well as the continuance, of the mischief. With this view, calomel was blown through a quill far into each nostril, and afterwards spirits of turpentine freely applied by means of a feather immersed into it, and introduced as far as possible. These applications had the effect of bringing away a great number, which relieved him considerably; but the irritation caused by the ol. terebinth, obliged us to discontinue it. I then substituted a strong decoction of quassia injected frequently into each nostril, which had

the effect of bringing away between 2 and 300 of these worms in one day, and, in the course of two or three days more, effected their complete expulsion; and discharged the man entirely cured. The other case was that of a teamster in the employ of the quarter-masters. He, as in the former case, was brought from camp, and received into the hospital appropriated for the sick of that department of the army. His was of a much more grave and serious character than the former. On examination, the velum pend. palat. was discovered, in a high state of inflammation and infiltration, resting on the tongue and completely closing the entrance of the fauces. The inflammation also extended to the parotid and sublingual glands, accompanied by a most fetid and offensive discharge both from the mouth and nostrils. Before his entrance into the hospital, he had discharged many worms. I subsequently ascertained he vomited and discharged by stool, many more; the last, however, were all dead, and were described as of a different color (being red) from those discharged from the nostrils, and which continued until his death, some four or five days afterwards. In this miserable and loathsome condition, he was unable to speak or swallow. The history of his case was very similar to the former. He was represented as frequently sleeping during the day under the shade of some trees, and while in this condition, was extremely difficult to rouse. They, moreover, described him as partially idiotic or foolish; and the supposition was, that while in a state of deep and profound sleep with his mouth wide open, the fly or flies actually entered and deposited their ova. The question may arise as to whether ulceration existed before the appearance of the worms, and which by the fetid character of the discharge would naturally attract the fly, and form a fitting nidus for their eggs. Not having seen the commencement of these cases, I cannot positively assert the existence or non-existence of this state of things; but so far as I can learn from the history of both, would seem to favor the idea or belief, that the fly or its larva was the original source of the mischief and disease. In continuation of this subject of foreign or spurious worms infesting the human body, a case now occurs to my recollection while the army lay encamped in the summer of '46 near Camargo, of a young officer of infantry, in feeble health at the time, applying to me on account of discharging by stool, at different times, quantities, as he stated, of the maggot or larva of the common fly, and which were a source of great annoyance and irritation to him. I first supposed he was mistaken as to the character of the worms, and that they were probably the ascaris lumbricoides, but he assured me they were precisely like the maggot of the common fly, and accounted for their appearance in the following manner. He had suffered, for some time, from a diarrhœa or dysentery, attended, while at stool, with a certain degree of prolapsus of the rectum. On one of these occasions, he expressed no doubt that the fly had lit on the prolapsed intestine and deposited its ova, which were subsequently voided in the state of larva. I prescribed for him at the time, but as he left shortly afterwards on a leave of absence, on account of his health, I had not an opportunity of ascertaining the effect of the remedies, or learning since that period the condition of his general health.

Conner, a clerk in the employment of the quarter-master's department, was wounded on the morning of July 30th by a pistol bullet,

which passed through the lower and fleshy part of the forearm, while in an extended position, and lodged directly over the clavicle, near its sternal extremity, and at the point of insertion of the sterno-cleido muscle. It was shortly afterwards extracted, and the wound dressed in the usual manner. Seven days afterwards, some twitchings with slight spasmodic action of the sterno-cleido muscles took place, particularly on touching the wound. This was soon followed by spasms of all the muscles on that side of his neck, gradually extending to the arm and spine, and terminating in a permanent contraction of the sterno-cleido muscle drawing down his head on that side, and rigidity of the muscles of the jaw. I saw him nine days after receiving the wound, and two days after the tetanic symptoms had made their appearance. A thin bloody discharge was issuing from the wound, and at the bottom of it appeared dark-colored or nearly black, which, on examination, I found to be the bone which was denuded of its periosteum for some distance, and apparently in a state of necrosis. At this time he had constant spasms of all the muscles of his right side, and touching his wound in the slightest manner, greatly increased their severity. The rigidity of the muscles of the jaw, and spasmodic action of those of the glottis, rendered it exceedingly difficult for him to swallow anything but fluids, and these last in very small quantities. He complained of no pain whatever, and alluded to the spasmodic action of the muscles as alone annoying to him. I could discover little or no excitement of his pulse or heat of the skin. Having had no passage from his bowels for the last forty-eight hours, I directed 40 grs. of submur. hydrarg. to be rubbed up into a paste with syrup, and applied, by means of a spoon, to the back of the tongue, to be followed in three or four hours by an enema of ol. terebinth and ol. ricini, provided the former did not operate in that time. A blister, two inches in width and twelve in length was applied to the spine, extending from the nape of the neck to the commencement of the lumbar vertebra. The denuded surface of this was directed to be sprinkled with the acet. morphia, gr. ij, at each dressing, and to the wound, lint dipped in a strong watery solution of opium applied, and over that an emollient cataplasm.

Having read the report of seven cases of traumatic tetanus, recorded in the November No. of your Journal, where the use of strychnine was described as successful in every instance, I determined to test its virtue and efficacy in this case. In consequence of the difficulty of swallowing a pill, the form recommended by Dr. Fell, who treated and described the above cases, the solution of strychnine made by the intervention of acetic acid and water, and of similar quantity and strength with the pill, was employed. It was also given in the same manner and at the same intervals as the latter. A few hours following the use of all these means, an evident amelioration was observed, both in the force and frequency of the spasms. These still, at intervals, proved quite annoying to the patient, and, as he observed to me, "were it not for these twitchings he should feel quite well." They, however, continued more or less this and the following day; but so sensibly diminished, as I have before observed, as to awaken the hopes of his friends of their entire cessation and his eventual recovery. So far had they subsided, as to permit him the same night to indulge in a sound sleep of several hours. When he awoke, however, he was attacked by

something like a fit, which was shortly succeeded by another, and then sunk into a state of coma or stupor from which he never again rallied, and in that condition expired on the morning of August 12th, thirteen days from the time he received the wound. I have been thus far particular in describing this case, not from anything that might be remarked as novel in its symptoms, or unusual in its character, if we except the freedom from pain experienced in a greater or less degree during the existence of the spasms, and nearly the entire continuance of the illness of the patient. My principal object is to show the decided amelioration and partial suspension of tetanic symptoms after they had existed for two days. Whether this was the effect of the strychnia or the other remedies employed at the same time, or the united effects of both, I cannot confidently say; it may be possible they had no agency whatever in this result, which may have been accidental or arising from some obscure pathological cause. As it is, however, the nature of this disease to go on increasing in severity and force, until its final and fatal termination, we have reason to believe that a favorable action was exerted in some manner over it by the agents employed, and we are disposed to give the credit to the strychnia. I greatly regret I did not see the case at an earlier period, to have enabled me to employ it on the first appearance of the tetanic symptoms, and thus been afforded a chance to test its virtues, and a slight, yet lingering hope, of saving the patient.

Case 5th.—Barton, a private of a company of Texan rangers, was wounded on the 8th of July, by the accidental discharge of a rifle in the hands of another man. The ball entered at the outer and posterior side of the left leg, just above the popliteal space and within the outer tendon of the biceps muscle. It passed directly through, coming out behind the inner hamstring, fortunately avoiding the popliteal artery, and struck the inner edge of the patella of the right knee, and was cut out from beneath the integuments covering its anterior and outer surface. Although small and much flattened, no suspicion existed at the time but that it was the entire ball; and the surgeon who extracted it, never suspected a fracture of the patella, as there was no displacement whatever of that bone. The man was brought to the general hospital, and the wound dressed in the usual manner. Severe inflammation, however, followed the wound of the right knee, notwithstanding its apparently slight character; while that of the left leg, which the ball had completely traversed, was comparatively mild. From the severity of the inflammatory symptoms in the former, I strongly suspected a fracture of the patella, but in consequence of the tumefaction existing at the time, it was impossible to ascertain this fact. The inflammation in a short time extended up the thigh and down the leg, which became enormously swollen; and notwithstanding the most active means employed to subdue this, it was followed by suppuration throughout the whole cellular tissue and under the fascia of both the thigh and leg. The matter formed was discharged by free opening, and continued to run freely for several days. To support his strength under this exhausting drain, brandy, wine and porter, with nutritious diet, was freely given; but a hectic or irritative fever with colliquative diarrhœa coming on, he gradually sunk, and expired on the 13th of Aug. On an exsection after death of the patella, I found it broken into five

pieces or portions, each retaining their relative position, with no displacement whatever of the bone. In the cavity of the joint directly under the patella, lay a portion of the ball, apparently the larger half, which had been divided on the edge of that bone, one portion passing externally, and extracted, as we have seen, shortly after the injury, and the other entering or passing under the patella. Marks of intense inflammation, with serous effusion in the joint, existed, and the cartilage covering the condyle of the former was abraded for the distance of an inch, apparently by the force of that portion of the ball found within the cavity.

Had any suspicion existed at the time of the injury, that a portion the ball had entered the cavity of the joint, or that a fraction of the patella existed, there would have been no hesitation in resorting to immediate amputation to save the man's life; but neither of the two surgeons who first saw him and dressed his wounds, did for a moment imagine either. No crepitus or displacement existed to denote a fracture of the patella; and the portion of lead extracted, though small, was believed to be the entire ball, and consequently excited no suspicion of a portion of it lying beneath and within the cavity of the joint.

ART. III.—*The Philosophy of Medicine.* A letter to the Editor. By S. L. METCALFE, M. D.

DEAR SIR,—In the September number of your Journal, is an article by Dr. N. S. Davis, called "The Philosophy of Medicine," on the tendency of which, I propose to offer a few observations. The Dr. very justly remarks, that the number, contradictory character, and absurdity of the theories or pretended systems, that have arisen and passed away in rapid succession, "have caused medical science to be regarded by many as so vague and uncertain, as to be little better than a blind system of guessing." This deplorable state of things, which has been admitted by the most distinguished members of the profession, he attributes to a proneness of the human mind to overleap facts, and a fruitless "struggle to grasp the *imponderable, infinite why and wherefore* of things." He observes, in another place, "that all animate matter is endowed with a power, principle, or agent, essential to its organization and vitality," but that "it matters little what name we apply to this vitalizing principle; whether it be the *calidum innatum*, the *principia vitæ*, the *chemical forces, animal electricity*, or *caloric*." He adds, "Of the essential nature of this *power* we know nothing;" and that "the true philosopher leaves this question where he leaves the essential nature of every thing else."

To say nothing about the manifest absurdity of confounding powers, properties, and chemical forces, with a vitalizing principle, or agent—the plain meaning of the foregoing remarks, when analyzed, is, that Medical Philosophy has nothing to do with causation, or "the *imponderable*, infinite why and wherefore of things." That such doctrines have been long advocated by medical writers is true, "and pity 't is 't is true." But from the prominent part which Dr. Davis has recently taken in

favor of a more thorough and philosophical education of physicians in these United States, he is certainly not the man we should have suspected of joining what may be called the ignorance party in medicine, by denouncing all efforts to discover the fundamental reason of things. It was observed by Lord Bacon, that "ignorance of the cause frustrates the effect; but that a knowledge of the cause becomes a rule in practice;" and that "the science of nature, rightly interpreted, is the knowledge of things through their causes." Mr. Hume also observes, that "if there be any relation among objects which it imports us to know perfectly, it is that of cause and effect, on which are founded all our reasonings on matters of fact; and that the only immediate utility of all science is to teach us how to regulate events by their causes." (*Essays.*) The application of these great truths to medical science, would well become what Bacon calls the "nobler sort of physicians;" and the plain inference from them is, that a knowledge of the cause on which all the operations of life depend, would become a sure guide in practice; but that ignorance of what the vitalizing principle is, and of the mode in which it operates, has rendered medical science "little better than a blind system of guessing."

Dr. Davis asks the question, as if in doubt, whether there are "at present existing a sufficient number of well-established facts and clearly-ascertained general principles, on which to found a rational and true system of medical science and practice?" That we have no fixed principles of physiology, pathology, and therapeutics, is generally conceded. And the chief reason is, that men have employed themselves in accumulating facts without order, until they resemble what Ovid calls "a rude and indigested mass;" the multitude and contradictory character of which, have tended rather to perplex than to enrich science. By a too laborious research into trifles, many have lost sight of the great leading facts that lie at the very foundation of medical philosophy. For example, there is nothing more certain, than that animal life is supported by respiration. Yet, who has so carefully analyzed this important function, as to determine with certainty whether life is maintained by the inspiration of certain gases, or by an imponderable agent, evolved by the chemical union of oxygen with carbon and hydrogen; whether animal heat be disengaged in the lungs, or in the course of the general circulation; whether Caloric and electricity be mutually convertible into one another, and modifications of one principle, without which all matter would be inert; why arterial blood, as it issues from the lungs and left side of the heart, has a higher temperature than after passing into the veins and right side of the heart; whether blood be formed in the lungs, where it is arterialized and vitalized, or in the general circulation; whether the Caloric which is conveyed to all parts of the body by arterial blood, is employed in transferring its particles to, and in uniting them with, the solids, as in the process of nutrition; how far the circulation of the blood is retarded by a loss of caloric, (as when the body is exposed to external cold,) or by a deficient supply of it by respiration; and how far this all-important function is diminished by an elevated external temperature, impure air, the depressing passions, concussion of the brain, compound fractures, and other severe injuries; above all, how far the natural condition of the blood is impaired by congestion, inflammation, or whatever retards its free circulation through the lungs where it is renovated, and what condition of the blood is es-

sential to the existence of fever? The man who overlooks the bearing of these fundamental questions on physiology, pathology, and therapeutics, may certainly prescribe for the names of diseases as a routine practitioner, but he should not undertake to write on the philosophy of medicine.

That Dr. Davis is wholly unacquainted with many of the great leading facts connected with animal heat, and even with the history of what has been written on the subject, is evident, from an article published by him in the September number of this Journal, in 1845. In opposition to such a mass of evidence as is scarcely to be found in the records of science, he maintains in that article that animal heat is not the product of respiration, but "*the direct result of the internal organic actions;* embracing the functions of innervation, circulation, and nutrition." He might as well have said, that the Caloric which enables steam to give motion to an engine, is not the result of combustion in the furnace,—but of all the actions of the machinery,—as that animal heat is not the result of combustion in the lungs, but the product of all the organic actions. And, as he contends that the high temperature of birds is owing to the great activity of all their functions—to be consistent, he ought also to maintain, that the increasing temperature of space on approaching the sun, is owing to the velocity of the planets which are nearest to that luminary. But "if it matters little whether the vitalizing principle be called the *calidum innatum*, the *principia vitæ*, the *chemical forces*, *animal electricity*, or *caloric*;" to what does the reader suppose Dr. Davis attributes "the internal organic actions" that generate animal heat? This important question is answered by the Doctor himself, who maintains in the article above cited, that instead of combining with carbon and hydrogen in the lungs, "oxygen is in fact the natural stimulus of the whole nervous system, to every part of which it must be constantly applied by means of the arterial blood." Yet he observes in another place, that "each of the separate organs require for the healthy performance of their functions, the presence and influence of certain agents, as atmospheric air for the lungs, food for the alimentary canal, impressions through the medium of the external senses for the brain, arterial blood for the heart, nervous influence for the muscles, etc." Now the plain matter of fact is, that all the organs require for the healthy performance of their functions, the presence and influence of arterial blood; while it is equally certain, that if not constantly furnished with a due supply of animal heat by respiration, arterial blood cannot excite the heart to contract, the nerves to feel, the brain to perceive, the stomach to digest, the various glands to secrete, and the voluntary muscles to move at the command of the brain. Dr. Davis asks with an air of triumph, "If animal heat is dependent on the quantity of oxygen and carbon consumed, how are we to explain the increase of heat in all febrile and inflammatory diseases?" He might have added another question, if oxygen does not unite with carbon and hydrogen in the air cells of the lungs, how are we to account for the fact, that the temperature of blood in the lungs, left side of the heart, and arteries, is from 1½° to 3° higher than in the right side of the heart, veins, and solids? Had Dr. Davis studied my work on the mechanical, chemical, and vital agencies of Caloric, he would have found answers to the above, and to many other important questions which he seems not to comprehend.

He would also have found "the sources of many errors into which physiologists and chemists have fallen, in their investigation of the subject of animal heat indicated;" as observed by an able writer in Hays' Journal of January, 1846. But there is internal evidence that he never perused my work, excepting such isolated portions of it as were to be found in the Reviews.

It was observed by a celebrated critic, that "the thing most required in an author is, that he should know something of the subject on which he proposes to write." Nor is it less important that he should have a liberal and independent mind, superior to the prejudices of education, and capable of appreciating the force of evidence. Yet Dr. Davis has devoted the greater part of his essay in passing judgment on a philosophical work that he never read, and therefore cannot be supposed to understand; in the performance of which, he has not only done great injustice to himself, but to the author, and the medical profession at large. The consequence of this imperfect information has been, that he has discovered contradictions in my work, that have no existence but in his own imagination; while he has overlooked the great leading facts on which all the reasonings of the author are founded; especially those which tend to establish the unity of causation, and the immediate agency of Caloric in all the physical and vital operations of nature. Another consequence of not knowing what he was writing about,—he accuses the author of Caloric of investing that agent with the attributes of Deity; whereas, in reality, it *is* repeatedly described in my work as the active principle in creation, by which Infinite wisdom executes the laws of nature.

In the course of his crusade against all efforts to discover "the imponderable why and wherefore of things," Dr. Davis objects to the proposition that "caloric is not only the most potent and universal stimulant in nature, but the cause of stimulability;" because, as he thinks, it is equal to saying that Caloric stimulates itself. But the obvious meaning of the above sentence, as explained by the whole tenor of the work, is, that Caloric is essential to that vital property or condition of organized bodies, which renders them susceptible to the impressions of stimuli, whether we call it *irritability*, *excitability*, or *stimulability*, and whatever be the tissue in which it resides. It is also a fact, that if the organs and tissues be not duly supplied with animal heat by respiration; or, if their temperature be greatly reduced by the loss of Caloric, as when long exposed to intense cold; they can no longer respond to the action of stimulants, until resupplied with Caloric, which is therefore essential to their excitability. Even Dr. Davis must admit, that the excitability of the whole vegetable world, like that of the lower animals, is arrested during winter in the middle latitudes, but restored in spring, and augmented in summer, by a resupply of Caloric,—without any addition of atmospheric air or oxygen. It is also stated by Izaak Walton, that some breams were placed in a pond, which became one mass of solid ice the following winter; but that shortly after it was melted by the returning warmth of spring, they were found swimming about in perfect health. And Sir John Franklin tells us, that carp taken from Winter Lake, in the polar regions, froze as they were removed from the net, and remained brittle as ice,—(one of them for 36 hours;) but were restored to life, and leaped about with vigor when placed before a fire. We are

further informed by Pallas, Spallanzani, and many other respectable authors, that the hedge-hog, the dormouse, the bat, and other hybernating animals, have often been reduced to a frozen state, in the middle latitudes of Europe, when the atmosphere was from 10° to 26° above zero; and that even their *irritability* was so completely extinguished, that they no longer responded to the stimulus of electricity, until aroused from their lethargy by the gradual application of Caloric. It is therefore evident that this agent is not only the most potent and universal stimulus in nature, but also the cause of stimulability; and that the charge of absurdity preferred against me by Dr. Davis, must be transferred to nature, whose proceedings, it must be admitted, are not precisely in accordance with his philosophy. In fact, it is now certain, that in the polar regions of Europe, Asia, and America, many species of animals remain in a frozen state during the greater part of the year, and again return to life when the flowers of spring begin to appear on the earth.

Dr. Davis observes, that "whoever shall patiently and carefully investigate all the phenomena of the physical world, including the agents called imponderable, in reference to their influence on the healthy and morbid conditions of the animal economy, will confer a great boon on medical science." Had the above sentence been suggested by a perusal of my work, its general scope and tendency could not have been better described. And if he had studied it with a moderate degree of attention, I should not have had the trouble of writing this article; while Dr. Davis would have found that the cause of life is not a whit more mysterious than the cause of evaporation; and that men have involved the noble science of physiology in profound obscurity, by resorting to metaphysics in preference to natural history, experience, and common sense. But Dr. Davis seems to have a sovereign contempt for all inquiries into the primary causes of things. In the ardor of his zeal against the unity of causation, he lays it down "as a sound axiom in philosophy, that where the presence of two or more substances are absolutely essential to the existence of a body in its natural and healthy condition, no one of them can be separated out and assigned as the cause of such existence." He adds, that as no living organized being can exist without the presence of atmospheric air or oxygen and water, we might with just as much propriety maintain that air or water is the cause of vital action, as caloric.

Had Dr. Davis perused the first volume of my work, he would not have confounded the active principle in nature with the elements of ponderable matter, or what the ancients called the *efficient* and *material causes* of whatever exists. For, he would have found abundant evidence, that without Caloric, the elements of ponderable matter could not exist in the liquid or gaseous state; and in short, that they would be perferfectly inert; consequently, that oxygen could not unite with carbon and hydrogen, as in the process of respiration, nor operate as a vital stimulant to any of the organs. Or had he studied the admirable directions of Sir John Herschel, for detecting among many unexplained phenomena their *common cause*, he surely would not have maintained that *oxygen* or *water* might just as well be considered the cause of vital action as Caloric. The rules proposed by Sir John for ascertaining which of two or more agents is the real or efficient cause, are the following:—1, *Invariable negation of the effect, with absence of the*

cause; 2, *Increase or diminution of the effect, with increased or diminished intensity of the cause*; 3, *Proportionality of the effect to its cause.* Now it must be universally admitted, that during even a partial absence of solar caloric, the germination of seeds and the growth of plants are arrested, as during winter in the higher latitudes, without any deficiency of either oxygen or water. It is equally evident, that vegetation commences in spring, *increases* in summer, *diminishes* in autumn, and *ceases* in winter, without any increase or diminution of air, oxygen, or moisture. I have also proved, in accordance with Herschel's third rule, that the quantity of vegetable life throughout the earth, (like that of evaporation and chemical action,) is directly in proportion to the heating power of the sun; *ceteris paribus;* diminishing from the tropical to the polar regions, and from the base to the summit of the highest mountains, even in warm climates. It follows then, from an application of the foregoing rules to the botanical history of our planet, that solar caloric is the producing cause of vital action throughout the vegetable world. And the man who resists this logic, founded as it is, on a vast array of concordant facts, must renounce reason as an instrument for the discovery of truth. That both oxygen and water are essential to the generation and development of plants, is universally admitted; but oxygen will not combine with the carbon and hydrogen of the starch in seeds, so as to form sugar, without a due supply of Caloric. That air, water, and more than a dozen other substances, such as phosphorus, sulphur, chlorine, with several salts and metals, are also essential to the composition of organized bodies, is admitted by all well informed physiologists. It therefore follows, according to the axiom of Dr. Davis, that any one of these substances might as well be considered the vitalizing principle as caloric,—an argument which proves perhaps more than he intended; and which his most devoted disciples will find rather difficult to swallow.

But to be serious: does the Doctor believe that oxygen could exert any influence in maintaining the functions of animal life, without undergoing a chemical change in the lungs, by which Caloric is evolved and united with the blood; or that any chemical action could go on without Caloric? Does he believe that oxygen, light, electricity, or any other agent, without Caloric, is capable of producing all the phenomena of animal and vegetable life? If so, we would recommend him to test his theory by the foregoing rules of Sir John Herschel, and to give us the result of his investigation in his next article on the philosophy of medicine. That light is essential to all the phenomena of coloration in plants, has been demonstrated by the experiments of Dr. Draper, who maintains that "the beams of the sun are the true nervous principle in plants," by which he evidently means the vital principle; for he observes, that "to the yellow rays is assigned their nutritive processes, and to the blue their movements." (*Phil. Mag., Aug.* 1844, *p.* 104.) But it is well known, that if kept in air of the proper temperature, all the movements of plants, including the decomposition of carbonic acid by their leaves, their circulation, nutrition, and growth, are carried on in the midst of profound darkness; and that all these vital processes are arrested during winter without any deficiency of solar light, electricity, or of oxygen. That caloric is "the true nervous principle," follow from the admission of Dr. Martyn Paine, and many other distinguished medical authors, who very justly observe, that

the loss of animal heat is followed by the loss of nervous energy; which therefore obviously stand in the relation of cause and effect.

But I must return to Dr. Davis, who charges me with "reasoning in a circle, by making animal heat at once the *cause* and the *product* of vital action." What then would he say of the philosopher who represented the universe as a circle whose centre is everywhere, and whose circumference is nowhere? Will he deny that Caloric is the cause of motion in a steam engine? Yet it is often so constructed as to supply itself with just fuel enough for carrying on the process of combustion, by which the Caloric is evolved that causes all its movements. It is therefore evident, that Caloric is both the cause and the product of its movements, which Dr. Davis would doubtless regard as "a self-evident absurdity." He has also made the notable discovery, that "life would be extinguished quite as soon by plunging a man in a bath of mercury at the temperature of 662° above zero, as at 30° below. And if the latter experiment proves that Caloric is *the* life-supporting agent, the former must prove it equally the life-destroying agent." By a very simple application of this powerful logic, we are led to the further discovery, that by raising the temperature of steam to 662° F., it would cause the boiler to burst and destroy the machine, just as certainly as that all its movements would be arrested by reducing the temperature of the steam; consequently, that Caloric is not the cause of motion in the steam engine; Q. E. D.

But I have proved by an appeal to the whole natural history of zoology, that the aggregate vital energy of animals, as manifested by their powers of digestion, circulation, secretion, nutrition, and muscular motion, is directly in proportion to the amount of Caloric they derive from the atmosphere by respiration during health, *ceteris paribus;* that all the functions of life are arrested by the loss, or by a deficient supply of caloric; that in hybernating animals, as in all the cold-blooded species, insects, etc., after being arrested in winter, they are revived in spring, augmented in summer, and diminished in autumn. It therefore follows, according to the rules of Sir John Herschel, that Caloric is the cause of vital action, although supplied by respiration, which is a vital process. Nor is it more wonderful, that the activity of birds, the swiftness of their flight, like the muscular energy of man, of the horse, dog, and other mammalia, should be in proportion to the magnitude of their lungs, and the quantity of their respiration, *ceteris paribus;* or that the velocity of a rail road car should be in proportion to the temperature of the steam by which it is impelled. In both cases, the moving agent is obtained by the combustion of carbon and hydrogen. In the latter, it is evolved in the furnace, communicated to the boiler, where it unites with water, and converts it into an elastic gas, which by acting on the piston, sets all parts of the machine in motion; whereas, in the former, it is disengaged in the lungs, where it converts chyle and lymph into the proximate constituents of blood, and raises its temperature, by which the heart is excited to contract, and send the vital stream to all parts of the system. And as the power of steam to move the piston is destroyed on parting with its Caloric in the condenser—so is that of arterial blood to maintain the activity of all the organs diminished or destroyed, by giving up the Caloric it receives in the lungs to the solids, which cannot be nourished and vitalized by dark venous blood,—for the simple reason that its temperature is reduced to an equilibrium with that of the solids,

and its nutritive properties impaired, until again renovated by respiration. (See "*Caloric*," v. 2, p. 672.) But Dr. Davis seems not aware, that a difference between the temperature of arterial blood and of the solids, is absolutely essential to all the phenomena of animal life, and therefore one of the great leading facts which lie at the very foundation of physiology. The consequence of which has been, that his criticism on my views of fever is too crude and imperfect to require a serious reply. It reminds us of the individual mentioned by Sir Edward Bulwer, who when criticizing the Apollo Belvidere, overlooked all the fine proportions of the statue, and dwelt only on a slight speck which he found on one of its fingers.

For example, he finds it stated in a review of my work, that respiration is always diminished during the night, and arrives at the minimum about midnight, when all the energies of life are proportionably reduced, and yet that the specific office of sleep is a restoration of the caloric and vital energy that have been wasted by exercise, which he regards as a contradiction. But if he had read the chapters on exercise, sleep, and fever, instead of isolated extracts from them, he would have found no contradiction; that although respiration is diminished from 20 to 25 per cent. during sleep, yet there is an accumulation of vital energy, *during health*, because it is not expended during sleep as it is by exercise; but that when the vital properties of the blood are deranged, as they are in the morbid conditions of the body which predispose to fever, the vital energies are not augmented as during healthy sleep; so that, as the coldest part of the twenty-four hours is just before sunrise, the chill that precedes fever comes on at an early hour, if the body be not well covered, or its temperature maintained by artificial warmth. He would also have found, that all the remote or predisposing causes of fever actually do diminish respiration, such as an elevated external temperature, impure air, the depressing emotions, a blow on the head, concussion of the brain, compound fractures, severe surgical operations, etc.; all of which cause a deficient supply of animal heat, and thus tend to reduce the temperature of the blood, or to bring on a chill; the consequence of which is, that the power of the heart, and the general activity of the circulation, are more or less diminished. Whatever seriously impedes the free circulation of the blood through the lungs, in which it is formed and vitalized, or its natural distribution throughout the system, deranges its healthy condition, and thus impairs its nutritive properties,—whether caused by the loss of Caloric, or a deficient supply of it by respiration. In fact, nearly all diseases, whatever their remote and exciting causes may be, and whether general or local, have their commencement in what Lord Bacon significantly calls, "stoppings and suffocations;" that is, in a retarded movement of the blood in the whole or in some part of the body, as exemplified in the cold stage of intermittents, the torpor of congestive fever, inflammation of the lungs, pleuræ, stomach, and other organs.

Of all the causes which impede the natural distribution of the blood, by far the most common and influential is cold, especially when the force of the circulation has been reduced by a deficient supply of animal heat by respiration. Whether applied to the skin, the delicate and widely-expanded tissue of the lungs, or to the stomach in the form of cold drinks, cold rarely fails to para-

lyze the capillaries, and produce congestion or inflammation in some one or more of the organs. It is equally certain, that whenever a considerable portion of all the blood in the body is arrested or seriously retarded in its passage through any one or more of the organs, as in inflammation of the lungs, stomach, bowels, etc., it is prevented from circulating through the lungs; so that being no longer renovated by respiration, it is soon rendered unfit to nourish the solids; the consequence of which is, that the Caloric which is employed during health in uniting its particles with the solids, and in giving to them vital energy, no longer performs its natural office, but accumulates in the body, and causes the preternatural temperature of fever. In this way, the whole constitution becomes involved in the consequences of a disease that was merely local in its origin, and not by nervous sympathy, as supposed by so many pathologists. As a proof that the preternatural temperature of fever is owing to a derangement of the formative process, and the latter to a morbid condition of the blood, by which the Caloric obtained by respiration is prevented from combining its particles with the solids—Sir Benjamin Brodie relates the case of a man at St. George's Hospital, in London, laboring under a lesion of the cervical vertebræ, whose temperature rose to 111° F., at a time when his respirations were not more than five or six in a minute.* And it is quite certain, that in many cases of pneumonia, bronchitis, phthisis, and other morbid conditions of the body, its temperature is often considerably above the natural standard, while the process of respiration is greatly diminished. But just in proportion to the failure of the process by which Caloric is transferred to the tissues in combination with the arterial blood by which they are nourished and vitalized, is the prostration or general debility that attends fever, and the aggravated character of all the other symptoms, such as stupor, disorder of the senses, loss of appetite, nausea, vomiting, pains in the head, back, and limbs. These symptoms remain until all the blood in the body is sent through the lungs a sufficient number of times to restore its natural properties. Then, and not till then, does the animal heat obtained by respiration, perform its healthy office of combining the proximate constituents of the blood with the different organs, and of enabling them to discharge their respective functions.

Thus it is evident, that all the phenomena of inflammation and general fever, whether of high or low grade, may be traced to a vitiated condition of the blood, and the latter to a derangement of the process by which it is distributed through the lungs and general system; that all the blood in the body may become as thoroughly denaturalized by exposure to cold, which prevents its free passage through the lungs, as by the introduction of morbific agents into the system. Hence the vast importance of comprehending the cause of animal motion,—whether it be identical with the "calidum innatum, the chemical forces, animal electricity, or some unknown property of organized matter." But the question, what is the cause of vital action, resolves itself into the still more comprehensive inquiry, what is the cause of motion? For, it is absolutely certain, that all the phenomena of nature are the immediate effects of motion—whether manifested by the attraction and repulsion of atoms, the aggregation of planets, or their revolutions round the sun and upon their axes. All the opera-

* London Medical Gazette, for June, 1836.

tions of astronomy, meteorology, chemistry, and geology, are resolvable into motion, which is equally essential to the germination, growth, and decay of plants. It is by motion that the blood of animals is formed, circulated, and its particles united by millions every moment with their tissues, which live, grow, and decay, in obedience to the same general laws that preside over the movements of all worlds. Let the motion of the universe cease, and everything would be reduced to a state of practical non-existence. Let the motion of the blood in animals cease, and all vital action is at an end. We have also just stated what is equally important, that any considerable and continued retardation of this motion is the beginning of disease. It is therefore evident, that the *essence of motion is a unity*, whether of suns and systems, or of their minutest particles; and whether mechanical, chemical, or physiological. It also follows, that *the cause of motion is a unity*, since it would be absurd to suppose that two or more causes are required to produce an effect which is essentially one; and that a right knowledge of what it is, and of the laws by which it operates, would give to man the key of nature.

What then is the primary physical cause of force and motion? The answer to this grand question is proclaimed by God Himself throughout all his works—in the sublime movements of the heavenly bodies—the upheaving of mountains, islands, and continents—in the circulations of the atmosphere, the transformations of chemistry, and in all the phenomena that make up the perpetual miracle of living nature. In the total absence of solar Caloric, if such a thing were possible, the beautiful round world, with its myriads of sentient beings, would be a motionless and lifeless desert. So universal was this belief from the earliest periods of civilization down to the commencement of the dark ages, that it may be regarded as the general voice of humanity, or a species of physical inspiration, dictated by the universe itself. It was by observing the birth of vegetation in spring, its growth in summer, decay in autumn, and death in winter, that our pagan ancestors were led to the discovery that elementary Fire is the active principle in creation. In the symbolical style of the ancients, this principle was personified and represented in the human form with wings, to denote the rapidity of its flight, and the mobility which it imparts to the universe of matter. Yes, it is on the wings of Fire that the waters of the ocean are elevated into the atmosphere in the state of invisible vapor, until on meeting with a colder mass of air it is condensed, and precipitated in the form of great natural shower baths. It is because our steam cars are impelled by Fire, that they fly over the earth with a velocity that outstrips the eagle. And it is because our telegraphic wires are winged with Fire, that they convey intelligence with the speed of lightning. Nay more, it is because the light of heaven is winged with the same *Æther*, that it travels with the swiftness of thought, and brings information of changes that are going on in the remotest systems which the telescope can descry. And it is because the birds of the air are so abundantly supplied with this vital essence, that they are enabled to wing their way from clime to clime, at the rate of six hundred miles per day. Lastly, it is because the heavenly bodies are impelled by the same *Æther*, that they fly through their orbits—some of them at the rate of more than a thousand miles per minute. The proof of which is, that their velocities are in proportion to the quantity of Ca-

loric that comes to them from the sun; and the intensity of which, like the force of gravity, varies inversely as the squares of the distance from its source. Had Sir Isaac Newton investigated the agency of Caloric, electricity, and light, in connexion with his mathematical theory of natural philosophy, he would not have represented attraction and repulsion as inherent properties in the atoms of matter; nor would he have attributed the centrifugal force of planets to a primitive impulse, imparted to them when first created, and the centripetal force to an inherent power of gravity. Instead of regarding that great orb as the fountain of motion to the heavenly bodies, he made of it merely a huge magnet. And when he reduced the planetary space to a void, he left no means of explaining how the sun could act, even as a great magnet. But we cannot pursue this subject any farther at present. That Newton himself ultimately renounced the projectile force, the vacuum of space, and the inherent powers of ponderable matter as insufficient to explain the phenomena of nature, is evident from the fact, that in the later editions of his Principia, the work on Optics, and in a letter to Mr. Boyle, he refers all the operations of the material universe to *one* active principle, which he calls "the unknown *Æther*." And that this *Æther* is only another name for Caloric, is evident from the fact, that he represents it as the cause of solution, evaporation, the elastic force of gases, and even of animal motion, as I have shown in the work on Caloric. Yet Dr. Davis condemns me for maintaining that Caloric—the same *Æther*—is the cause of all physical and vital phenomena. He concludes his Essay on the Philosophy of Medicine by observing, "that after all our generalizations and our most rigid scrutiny, there is in all animate nature a *prima causa*, an inherent condition of organization, that forms a link, a step anterior to, and beyond human explanation."

If by the words *prima causa* Dr. Davis means the primary physical cause of vital force and motion, it is my honest opinion that he has greatly underrated the powers of the human mind, which, if rightly employed, is capable of discovering whatever is essential to the happiness of our race. But we are often told that "God has set bounds to human knowledge," and that "it is vain if not presumptuous to attempt the discovery of what He has glorified himself in concealing." Where then has the Author of nature fixed the boundaries of human knowledge? Were they settled when men regarded the earth as the centre of the solar system,—when the blood was supposed to be formed in the liver instead of the lungs,—when the mind was supposed to reside in the heart instead of the brain, and the nerves were confounded with tendons? No, we have not yet arrived at the limits of human knowledge. Nor is there any good reason why it should not go on extending until all the phenomena of nature shall be clearly understood. When God created man a little lower than the angels, it was that he might comprehend the laws of the universe, and make them subservient to the enlargement of human happiness. To those who maintain that "the essence of the vital principle is necessarily inscrutable," I would answer with Seneca, that "men have made all things difficult to themselves by disdaining things that are easy." Overlooking what is continually passing before their eyes, they have sought in the remote and obscure for the explanation of phenomena that are simple, if the light of experience and common sense be taken for a guide.

We are told by others, that "no other reason can be assigned for the phenomena of nature, than the Divine choice and ordination." This view has long retarded the progress of real knowledge, by preventing men of genius from seeking to discover the why and wherefore of things. Hence it is, that the whole problem of causation has been involved in mystery—until finally it has become almost fashionable to regard a frank confession of ignorance on the subject as a proof of wisdom, and any "attempt to comprehend it as visionary or frantic, if not a daring invasion of the province of Deity." That all the operations of nature are governed by infinite wisdom, is sufficiently evinced by the admirable beauty, order, and harmony of the universe. Yet if, in referring everything to the Deity, we overlook the instrumental agency by which He executes the laws of nature, we must suffer the penalty of ignorance in regard to what is most important to be rightly understood. In fact, the tendency of ignorance has ever been to refer the natural cause of things to supernatural agency, which can never be understood and reduced to laws capable of practical application. Hence it was, that during the dark ages, all physical science was held in contempt by Christian writers (according to Mr. Hallam), whose metaphysical disputes contracted and degraded the faculties of the human mind. Nor has the sun of knowledge yet dispersed the clouds of mysticism that hovered over Europe during the long reign of monkish ignorance. There are still men who would rather keep the world in darkness than join in any great intellectual movement not in accordance with established systems; who are too indolent to improve science by their own exertions, and yet who, if any one attempt the difficult task of "bearing the torch of truth into those dim recesses where no real light had ever shone," cry out. Presumption! or invoke the clamor of superstition, with a hope of drowning the voice of reason. It is certainly a disgrace to the moral character of mankind, that they have generally treated new truths in science with neglect or persecution. But there are men who have been so long accustomed to "grope in the noon-day as in the night," that, like the mole, they lose the power of vision, and prefer darkness to light.

More than a hundred authors might be quoted, who affirm that "all we know or can know of life is, that it is the sum of the organization and its actions;" as Dr. Bartlett observes, in his late Treatise on the Philosophy of Medicine. What wonder is it then, that such men as Napoleon, and many other master spirits of the world, should have regarded Medicine as the most uncertain of the sciences, on the broad ground of our total ignorance in regard to the cause of vital action, of what it is, how obtained, and the mode of its operation? "Who can be surprised," says Dr. Jackson of Philadelphia, in a recent Introductory Lecture, "that empirics should find favor with the public, when medicine formerly was and continues to be, at this time, to a great extent, empirical in practice?" (p. 13). It was truly said by a distinguished teacher of medicine in the West, (Dr. Drake), that *pathology must forever remain a sealed book to him who is ignorant of physiology;* and that the violation of this great truth has alloyed our profession with most of the quackery that disgraces it." He adds: "How can the curative effects of medicines be studied by him who is ignorant of their *modus operandi* on the body in health?" He might also have asked, how is it possible to practice

Medicine with safety to the patient, while ignorant of the cause on which all the actions of life depend, and without knowing in what the reparative powers of the living body consist? But Dr. Bartlett maintains, that "pathology is not founded upon physiology, and that a knowledge of the one does not presuppose a knowledge of the other." (Philosophy of Medicine, pp. 86, 194). He has even gone so far as to assert, that "no one phenomenon of physical science can be deduced or inferred from any other phenomenon." Has Dr. Bartlett then to learn, that the great fact made known by Copernicus, led to the equally important facts discovered by Kepler; from which Newton ascended to the law of universal gravitation? And was it not by applying the knowledge of this law to the phenomena of perturbation that M. La Verrier was led to infer the existence of a new planet? Was it not by his knowledge of Comparative Anatomy, that Cuvier was enabled to assign the genus and species of an animal by inspecting one of its fossil bones? And are we yet to learn, that the great fact discovered by Dalton, that bodies unite chemically with each other in definite proportions by weight, has shed new light on the whole science of nature, while it has facilitated the operations of the manufacturing chemist? It is, however, useless to reason with Dr. Bartlett on the theory of atoms, since he maintains with Faraday, that their very existence is hyphothetical, "or a mere fiction of the mind." (Op. cit. p. 35.) Why not proceed a step farther, and, with Bishop Berkley, deny the existence of matter altogether; or, with Emanuel Kant, why not resolve Caloric, electricity, light, and magnetism, into the mere forces of attraction and repulsion; or into undulations of the unknown *Æther*, about which so much has been written to so little purpose?

It was observed by Aristotle, that we may consider ourselves to know respecting anything, when we know its cause, its principles, its first elements. And the accomplished Cicero says, that "there is nothing more stupid (*stultius*) than to suppose that any thing could exist without a cause." He adds, in the very spirit of the Baconian philosophy, that "the cause of each event being known, then it can be known what will come to pass." Yes, noble Roman, and it may be safely affirmed, that no physical law, however comprehensive in its range, which does not include a knowledge of the producing cause, can ever become a sufficient guide in practice. If we know not the cause of digestion, circulation, secretion, nutrition, sensation, and muscular motion, — whether it be an inherent property of matter, the *calidum innatum*, the *principia vitæ*, the *chemical forces, animal electricity*, or *Caloric*, how is it possible to adopt the best means of restoring these functions to their natural state, when deranged? To enumerate all the evils that have arisen from ignorance of the vital principle, would require a volume. That it has prevented Medicine from taking its appropriate rank among the exact Sciences, has been often admitted by the most enlightened members of the Profession. But the Scotch Metaphysicians would have us believe that "the principal object of science is not the discovery of causes, but only of facts and general laws"—an avowal which is not only false in theory, and pernicious in practice, but a shameful excuse for ignorance of what is most important to be known. It is true, that Dr. Reid has offered some just remarks on the subject; for he observes, that "the name of

a cause or agent is properly given to that being only, which, by its active power, produces some change in itself, or in some other being." Yet he adds, that "natural philosophers have never discovered the efficient cause of any one phenomenon." (Essays, Chap. VI). Dugald Stewart also observes, that "our knowledge of physical events reaches no farther than to the laws which regulate their succession." But he involves the whole theory of causation in metaphysical obscurity by saying, that "the words power and energy express the attributes of mind, not matter; while he inveighs against "the constant tendency to identify efficient with physical causes." (Philos. of the Hum. Mind, Part II. c. 7.) Next came the theory of Dr. Thomas Brown, who denies that there is any such thing as causation in nature, except the invariable antecedence and sequence of phenomena. This absurd doctrine was long ago anticipated and refuted by the philosophical Cicero, who rightly defines the word cause "as not merely that which precedes any event, but that which *productively* precedes it." (De Fato, 48, 49.) To conclude: the more profoundly we investigate the mechanism of the universe, fewer do we find the number of causes, until, in the last analysis, they are all resolvable into one, which is the principle of motion. And the same is true in theology: the higher we ascend towards the origin of knowledge, the smaller do we find the number of deities, until they are all resolvable into one eternal, omnipresent, and self-existent mind—the supreme Fountain of truth, law, order, and harmony.

ART. IV.—*An Essay on the Philosophy of Medicine, and the Spirit in which it should be studied and practised.* By N. S. DAVIS, M.D. New York, late of Binghamton.

OF what morbid changes are our organs susceptible, and what the agents capable of producing them? Perhaps there is no part of the whole science of medicine, concerning which medical literature furnishes so many contradictory opinions as this. Thus one class of men, viewing the living human body only as an intricate chemical laboratory, derive all diseases from excess or deficiency of some chemical ingredient. Another attributes all to a vitiated state of the fluids, and hence are called Humoralists. Another makes all morbific agents act directly on the nervous system, depressing the vital energy, and thus deriving all disease primarily from debility; while still another class can see nothing in the whole catalogue of maladies but excited action, irritation, and inflammation. Again, one tell us that all fevers are general and idiopathic in their origin and character; while another strives with equal zeal to convince us that they are all symptomatic, and traceable to local inflammatory disease. And shall I not add that there are still others, who not only claim to be learned, but who are freely honored with the title of M.D. by our most popular medical schools, who endow diseases with a spiritual nature, and derive them all from *three* primitive forms, viz., syphilis, sycosis, and itch. It requires only a cursory glance at the true philosophy of diseases to discern both truth and error in all these views, save the last, which is error without mitigation or mixture. Thus we may

have disease arising from deficiency or excess of some chemical ingredient, from a vitiated state of the fluids, from direct depressing influences on the nervous system, from irritation, etc. The error consists in attempting to make a limited law universal, or in other words, endeavoring to deduce a general law from a limited number of facts. Another idea, the fallacy of which will soon be made to appear, is that of the primary *unity* of disease, about which there has been so much controversy from Paracelsus to the present day. While endeavoring to solve the first part of the question at the head of this article, we must constantly bear in mind, not only that each organ has its own special function, and an appropriate excitor to the performance of that function, but that each is composed of solids and fluids; the first variously organized, constituting different tissues, and the second of different colors and composition. Hence we should, *a priori*, infer that every organ is susceptible of the following abnormal conditions, viz., 1st, a simple increase or diminution of the natural action or function; 2d, a perverted or unnatural action; 3d, excess or deficiency of nutrition; 4th, alteration of structure; 5th, alteration of the fluids. The first conditions generally result from an increase or diminution in the intensity of the application of the natural stimuli. Thus, oxygen is the natural supporter of respiration; and if we increase its natural proportion, as when we inhale the protoxide of nitrogen, the respiration increases in frequency, the circulation becomes more rapid, and all the vital functions proportionally increased. On the contrary, if the quantity of oxygen is diminished, as when we inhale the air of heated and crowded apartments, or when we diminish the capacity of the lungs by external pressure, respiration and circulation are diminished in force if not in frequency, the nervous tissue does not receive its usual stimulus in duly oxygenated or arterial blood, a sense of languor comes over the whole system, the bowels become inactive, and all organic actions are depressed. Those modes of dress which confine the chest and diminish the capacity of the lungs, which are unhappily still too much practised by the female public, afford abundant illustrations of this state. Although these conditions consist in simple excess or diminution of natural actions, and therefore cannot properly be regarded as morbid, yet their long continuance invariably results in the second condition stated, viz., perverted or unnatural action. Thus the continued absence of a due quantity of oxygen in the blood, while it diminishes the energy, increases the irritability of the nervous system, creating morbid sensations, while the inactivity of the muscular tissue, particularly of the digestive canal, causes a retention of excretory matter, and sooner or later the development of some form of active disease. The same result is produced in a more direct way by a great variety of other causes, which will be more particularly alluded to under the 5th head, of alteration of the fluids. So long as the action of an organ remains simply exalted or depressed, a removal of the cause speedily restores the equilibrium. But when the action has become altered or unhealthy in its character, it often, nay, generally, continues after the cause ceases to operate. This is a distinction of great practical value, as will be seen by extending the illustrations already introduced. If we cease to inhale protoxide of nitrogen, after a few moments all its effects rapidly disappear; but let that inhalation be continued for hours or days, and we shall find the capillary vessels of the more de-

licate tissues becoming engorged by the unnatural force of the circulation giving rise to congestions, hemorrhages, and inflammations, particularly of the pulmonary organs; and the nervous system passes from a state of simple excitement to that of fixed derangement indicated by spasms, insensibility, or insanity. On the other hand, if we pass from a temporary stay in an atmosphere deprived of a part of its oxygen, the system speedily resumes its wonted vigor, while a continued residence in such an atmosphere would not only cause a diminution of all the organic actions, but such diminution, by lessening both the nervous activity and the secretions, would cause the retention in the blood of excretory or waste matter that should have been thrown off. Hence this excretory matter, circulating in the blood, is soon brought in contact with organs and tissues for which it has no affinity, and on which it exerts a direct morbid influence, giving rise to diseases of a typhoid and often rapidly fatal character. It is thus that we gain a clear idea of the manner in which simple exaltation or depression of the natural actions or functions results in perverted or morbid actions. Again, if the diminished supply of oxygen, instead of being constant, is frequently alternated, as in the case of a female who compresses the chest during the day and omits it during the night, instead of developing a train of typhoid diseases, such as jail fever, dysentery, etc., we shall destroy the equilibrium of the circulation, and the natural uniformity of all the functions, a state usually characterized by frequent palpitations of the heart, headaches, constipation, nervous irritability, great weariness on slight exercise, etc. We have thus far spoken of perverted or morbid action only as the result of protracted excess or deficiency of the natural action; but the same may result from a much more direct interference with the various organs: such is the introduction of indigestible substances into the stomach, the inhalation of foreign matter with the atmosphere, or its absorption by the cutaneous tissue, etc. But we shall revert to this point again, while examining the alterations of structure. The third conditions of an organ we represented as consisting in a simple increase or diminution of the healthy standard of nutrition. These are distinguished under the names of hypertrophy and atrophy. Hypertrophy consists in an increase of the bulk or weight of an organ, or tissue of an organ, by an excessive addition of its own proper substance. The excessive nutrition may cause a simple increase of bulk, without any alteration of density, or the excess of matter may be so added as to diminish the natural pores and cells of the organ, giving rise to hypertrophy, indicated by increased weight and density, without alteration of bulk. Or we may have excess of nutrition indicated by increase of the bulk of one tissue at the same time that we have atrophy or wasting of another belonging to the same organ. Consequently the organ as a whole may be neither increased in bulk or weight, and yet hypertrophy and atrophy exist in its respective tissues; but this state will generally be indicated by some alteration of form. Dr. Watson and others have mentioned another mode in which hypertrophy may take place without increase of bulk, viz., by the additional nourishment being deposited in the inner membranes of hollow organs. But we must deem this a fallacious distinction, for additions to the inner surface of a hollow organ, so as to diminish its capacity, just as much increases the *bulk* of the organ proper, as though it had been added to the outside. Hence we should

term it hypertrophy without increase of *circumference*, instead of without increase of bulk. The immediate or proximate cause of hypertrophy is very generally represented to be an excessive supply of healthy nutritive matter in the arterial blood, while its remote cause may consist of anything capable of causing the flow of an unusual quantity of arterial blood to any particular organ or tissue. But if we remember that nutrition consists essentially of two processes, one of deposit and the other of removal, we shall readily perceive that an unusual sluggishness or diminution of the latter would produce the same effect as unusual activity of the former; and consequently that hypertrophy may exist without any real excess in the supply of nutritive matter or arterial blood. The influence of exercise on development is too well known to need a passing allusion. Atrophy or wasting, being directly the opposite condition from hypertrophy, presents us with an exact counterpart to each of the varieties and causes of the latter which have been named. The reader will not fail to notice the relationship existing between these conditions and those of simple increase or diminution of the natural actions; the latter being often the immediate cause of the former. The 4th abnormal condition, viz., alteration of structure, is much more complicated in its nature and more serious in its results. It may manifest itself in any of the following ways, viz., softening of the affected tissue, induration or hardening of the same, change of form, color, size, and texture. There is no tissue in the organs of the human body that may not become altered in consistence; but the nervous and cellular are much the most liable to such changes. Softening may result from simple defect of nutrition; the new particles not being deposited as fast as the old ones are removed, the tissue or organ necessarily becomes either shrunken or softened. In the latter case the softening becomes an accompaniment of atrophy. The disease called mollites ossium, which consists in a soft and flexible state of the bones, affords a good illustration of this condition. Again; softening may arise from simple defect in the cohesive or vital attraction existing among the particles of which the tissue is composed. Instances of this kind are most frequent in the mucous membrane of the stomach and the nervous tissue of the brain. It seems to have its origin in some defect of the vital forces or affinities, and is most apt to occur in old persons, or during the progress of diseases of a typhoid character. Another variety of softening has its origin in simple dilatation of the vessels of the affected part, as in varices. But perhaps far the most common variety of softening arises primarily from inflammation. To understand the philosophy of this, we must gain a clear idea of the parts essentially implicated in the inflammation, and the natural functions of those parts. It seems to be now very generally conceded, that the capillary extremities of the arteries constitute the primary seat of this disease. These capillary extremities possess the organic properties, irritability or susceptibility and contractility in a very high degree; and to these must be added the property common to all living organized tissues, viz., vital affinity. All these properties are peculiar to living organized tissues, and hence we must not confound the first with *sensibility*, which is a purely nervous function; nor the last with chemical affinity, to which it often acts in direct opposition. While these organic or vital properties are in their natural condition, no red globules of the blood are permitted to pass from the extremities of the arteries into the lymphatics or colorless capillaries; not because

the latter are too small to receive them, as imagined by some, but because of that *discriminating* susceptibility or vital affinity which constitutes the basis of nutrition, and enables each vessel or tissue of vessels to select only its appropriate fluid. Pathologists have very generally arranged themselves into three classes on the subject of inflammation. The first making it consist in an altered condition of the nervous energy; the second in an increased dilatation and contraction of the extreme arteries, with increased rapidity of circulation, forcing the red globules into vessels adapted only for colorless fluid, etc.; while the third, which is at the present time much the most numerous, makes it consist in passive dilatation of the capillaries, slowness of circulation in the dilated vessels, and consequent accumulation of blood, increased redness, etc. The two latter classes equally adduce the results of microscopial observations in proof of their respective theories; and each are doubtless correct, to a certain extent, in their observations. But while the advocates of a nervous pathology of inflammation have mistaken an occasional *cause* for the thing itself, we think the two latter classes have equally mistaken the *effects* for the disease. Without occupying either the time or space necessary to give all the facts on which our conclusions are based, we will venture the opinion, that inflammation consists essentially in an *altered* or *modified* state of the *vital properties* of the arterial capillaries. And the specific effects which follow, whether it be contraction or dilatation of the capillaries, accompanied by increase or decrease in the rapidity of the circulation, or in place of either, a simple change in the vital affinity giving rise to morbid deposits, interrupted nutrition, etc., will depend on the nature of the remote and exciting causes.

Thus the morbific causes may produce such a change in the vital affinity of any particular tissue, that, instead of attracting its own proper nourishment, it attracts and causes to be deposited, matter foreign to the natural composition of the tissue, such as tuberculous matter in the lungs, carcinomatous matter in the mammæ, ossific matter in the arterial coats, fatty matter in the muscular fibre, &c.; and yet, during all these changes, there may be no perceptible change either in the size of the capillary vessels, the rapidity of the circulation in them, or in the color of the affected tissue. Or the causes may be of such a nature, as either to increase or diminish the *contractility* of the arterial capillaries, thereby producing, in the first instance, increased rapidity and force of circulation, and the carrying of red blood into vessels naturally containing only colorless fluids; and in the second, dilatation of the vessels, slowness of circulation, accumulation of blood, increased redness, &c. And if, with either of these, we have co-existing increase or diminution of the vital affinity, we shall have in the one case, effusions or deposits of lymph, swelling, induration, etc.; and in the other, increased vascularity, extravasation, softening of structure, or complete dissolution, as in ulceration. In a word, we shall have all the generally-admitted phenomena, and results of inflammation.

Again; the remote or immediate cause or causes may be of so paralyzing a nature, as to greatly diminish both the contractility and vital affinity of the vessels, thereby not only arresting nutrition, but giving rise to purely passive hemorrhages, petechiæ, etc. If the foregoing views of the vital properties, and of the action of various morbific agents on these properties, are correct, we see at once a ready solution of the many and conflicting questions which have arisen in regard to the nature

of fevers and inflammations. We readily perceive that both these terms have been commonly used to designate a number of very different morbid conditions; while we have been taught, at the same time, to attach to them the idea of *unity*, as if each was the representative of some one definite morbid condition or action. Hence have arisen the almost numberless theories, founded on partial observation, yet claiming to be of universal application; and the perplexing contradictions in opinion and practice, with which medical literature abounds. But by studying the vital properties, those distinctive characteristics of organized matter, and carefully analyzing the alterations and modifications of which they are susceptible from the influence of external agents we obtain clear and distinct ideas of the *pathology* of diseases; while by the study of *morbid anatomy*, we are made acquainted with their results or effects. By reversing this proposition, and thereby substituting the study of morbid anatomy for pathology, many errors have been committed in modern times. If it be true, as is now universally conceded, that the vital properties to which we have alluded, really exist, and that the continuance of life is the result of the action of outward agents, as atmospheric air, aliment, etc., on these properties, then nothing is more clear, than that the modification of these external agents will produce a corresponding modified impression on the vital properties. And these again will induce corresponding modifications in the organic actions or functions. Thence the idea of a *unity* of disease, whether that unity consist in "primary debility," as stated by Dr. Rush; or increased excitement, or nervous irritability, as maintained by others, is an absurdity. There being, in fact, just as many primary diseases, as the vital properties are susceptible of primary deviations from their normal condition. These deviations we have already indicated, accompanied by their most prominent effects, and their further illustration is prevented by the narrow limits at present assigned us. But we think no close observer will fail to recognise in those deviations, a rational explanation of the origin and true pathology of those morbid actions which, in their progress, make up the whole catalogue of human diseases. While the attempt to refer such varied phenomena as are presented by the different forms of fever, inflammation, organic transformations, etc., to any one primary morbid condition, cannot be otherwise than an endless source of perplexity to every reflecting mind.

After what has already been said on the subject of softening and pathology in general, it is unnecessary to enter more into detail in reference to the remaining ways in which changes of structure are manifested. We have thus far spoken only of the morbid changes which take place in the solids, but the fluids of the system are equally liable to alterations from the healthy standard. Thus the blood, from which all the other fluids are derived, may be altered in its composition, its color, its fluidity, and its properties; and as it circulates in, and affords nourishment to, every part of the animal system, a right understanding of its deviations from the healthy or normal standard, is of great importance to the physician. The blood, though exceedingly complex, is, notwithstanding, very uniform in its composition so long as it is derived exclusively from materials which have undergone the process of digestion.

But the experiments of physiologists, as well as the every-day observation of physicians, have proved that it is constantly liable to

changes from the absorption of indigestible materials introduced into the stomach, or foreign matter absorbed from the mucous tissue of the lungs, the cutaneous surface of the body, etc. Indeed, we believe it is now generally conceded, that all soluble substances brought in contact with the absorbent vessels in any part of the body, either enter into direct combination with the substance of the tissues, or are freely taken up and carried into the mass of the venous blood. But most of these substances are again speedily separated and cast out of the system by the excretory organs, as the kidneys, skin, etc., and hence their influence is either entirely prevented, or rendered comparatively slight and temporary. But there are some substances not so readily separated by the excretory organs, and which, by changing the composition of the blood throughout the whole system, exert a painfully-modifying influence over the *vital properties* themselves. To this class belong our most powerful remedial agents, as well as those more subtle poisons arising from vegetable and animal decomposition, or from the living animal system while laboring under particular forms of disease. The powerful influence which foreign agents are capable of exerting on the whole system through the medium of the blood, is well illustrated by the recent and very injudicious practice of inhaling ethereal vapor to prevent sensibility to pain. For though it is possible that this agent exerts some influence on the brain, through the medium of pneumogastric nerves, yet it is now well ascertained, that it is absorbed by the pulmonary organs, taken into the circulating fluids, and thereby brought in contact with all the tissues, diminishing the coagulability of the blood, making it vermilion color in the veins as well as the arteries, and essentially modifying the vital properties of the solids.* Some other agents produce a reverse effect on the color and consistence of the blood; making it dark-red in both arteries and veins, and producing equally marked changes in its properties. Until very recently, it has been supposed that only such substances are capable of being absorbed, as are presented to the absorbents in a state of solution. But if the experiments of Professor Oesterlin, are to be relied on, this supposition is not strictly correct. They fed rabbits with charcoal finely-pulverized, several days in succession, without any other apparent effect than a blackened state of the alvine evacuations. But on examining the blood taken from the mesenteric and portal veins, from the right cavities of the heart, etc., he found it to contain minute particles of charcoal, varying in size from 1-300th to 1-60th of a line.† Other animals fed on Berlin blue, gave the same result. This would seem to prove, what we had before suspected, that even solid substances in a state of extreme division may be taken up by the absorbents of the alimentary canal. From the foregoing remarks, the reader will infer that we belong to no exclusive class of pathologists, whether humoralists, solidists, or neuralogists; but we are satisfied, that every part of the human system, whether solid or fluid, is susceptible of morbid changes or deviations from the normal condition; and that every such deviation is indicative of some change in the outward agents acting on the affected part or parts, or in the inherent vital properties, or in both conjoined.

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* For proof of the above facts, see September No. of this Journal, pages 279–80.
† See same Journal, p. 273.

The importance of such deviations will be measured by the nature of the alteration, and the relations of the affected part to the great vital organs of the system. Again; primary deviations from health in one part, often become the immediate cause of greater deviations in still more important parts.

This is well illustrated by the action of blood, rendered abnormal by the addition of foreign substances, on the brain, heart, and other important organs; or, on the other hand, by the influence which the primary lesion of an important organ exerts over the condition of the blood. For instance, a primary inflammation or other disease of the kidneys by which the formation of urine is diminished or entirely suppressed, allows the ingredients of urine to remain unseparated from the blood, to be circulated in contact with other organs and tissues, for which they have no natural affinity, and on which they consequently exert a more or less deleterious influence. Thence we may close this branch of our inquiry with the following distinct propositions, viz.: 1st, Every part of the animal system, whether solid or fluid, is subject to deviations from the healthy condition in the various ways to which we have alluded. 2d, Every such deviation in the solid parts is the result of some modification of the vital properties in the part or parts affected. And 3d, Every such modification of the vital properties, is the result of direct or indirect expressions of outward agents. This leads us legitimately to the consideration of the second branch of the inquiry stated at the commencement of this article. But this task must be reserved for a future occasion.

P. S.—In our previous article we alluded to the great work of Dr. Metcalfe on Caloric, and charged the author with having invested the latter substance with some of the attributes of Deity. To this Dr. Metcalfe took exception, on the ground of its implying the entertainment of *infidel* sentiments on his part. We cheerfully assure the reader that nothing was further from our intention than such an imputation. Our expression had reference solely to the almost boundless influence and qualities ascribed to Caloric, and not in any degree to the moral character or religious sentiments of the author.

ART. V.—*Cases of Staphylorraphy, with some general Remarks upon the Operation.* By ALFRED C. POST, M. D., Surgeon to the New-York Hospital, &c.

CASE I.—C. D. T. Ferris, a young man 20 years of age, presented himself at the Clinique of Castleton Medical College on the 21st August, 1843. He had a congenital fissure in the median line, extending from the posterior edge of the bony palate through the velum palati to the extremity of the uvula. His articulation was very indistinct, so much so as to be almost unintelligible. Having placed the patient in a favorable light, and depressed the tongue with a curved spatula, I held successively the two edges of the fissure with a double hook, and excised them with a scalpel. I then introduced three sutures by means of a curved needle attached to a handle, drawing out the threads with a forceps. I found considerable difficulty in drawing out the threads, in consequence of the needles being too little curved, so that their

points were necessarily thrown very far back. The patient fainted during the operation, which was somewhat protracted. The quantity of blood lost was very small, scarcely exceeding an ounce. In tightening the ligatures, I found some difficulty in keeping the first knot tied until it could be secured by a second. I accomplished it by having the ends held by an assistant between the blades of a forceps. The gentleman to whose valuable assistance I was so much indebted on this occasion was Doctor Ayres, now of Brooklyn, but at the time referred to, a student of Castleton Medical College. After the knots were tied, so much tension existed in the velum, that I feared that the threads would cut through the edges of the wound: to relieve this tension, I made an incision on each side parallel to the wound, and extending through half the thickness of the velum, according to the method proposed by Dieffenbach. The first day after the operation, the patient was allowed to swallow nothing but a teaspoonful of milk every hour, and to hold ice in his mouth. He was directed afterwards to take a pint of beef-tea daily for a week, to be swallowed very slowly and in small quantities at a time. He was also directed to confine himself to liquids for another week, but to take them somewhat more freely.

Aug. 24th. I examined the throat, and found the edges of the wound in perfect apposition, and very little appearance of inflammation. The patient complained very little of soreness of the throat. On the evening of the same day I left Castleton.

During the month of May, 1844, I visited Castleton again. I did not see the patient, but I was informed by several persons who had seen him, that the operation had been entirely successful.

Case II.—Miss B., ætat. 25 years, was affected with a congenital fissure of the velum, very nearly resembling that of Ferris. I performed the operation on the 21st Nov., 1845. The steps of the operation were the same as in the former case, except that I was provided with needles which were curved laterally, so that I was enabled to introduce the sutures with greater facility. The tension of the velum was very considerable, and was only partially relieved by the incisions which were made on each side of the fissure. A few minutes before the operation, the patient had been mesmerized by a Doctor Strong, and at the time of the operation she sat on a chair with her head thrown back and her eyes closed, as if she were asleep. With this part of the proceeding I had nothing to do. She did not cry out during the operation, but in my opinion she gave unequivocal evidences of sensibility by shedding tears, biting my finger, and taking hold of my arm to prevent me from hurting her.

I had no opportunity of directing the treatment after the operation, as the patient was taken to Brooklyn without my knowledge, and I could not obtain any information as to her place of residence until after the lapse of four days. On the 26th I saw her, and found that partial separation had taken place. On the 29th I saw her again, and found that the separation was complete.

Case III.—Ebenezer Locke, aged about 25 years, had congenital hare-lip, complicated with fissure in the median line, extending entirely through the bony and soft palate. The hare-lip had been operated upon successfully in childhood, and the alveolar portions of the upper jaw-bones had come into contact: but the fissure continued through-

out the whole length of the hard and soft palate, averaging five-eighths of an inch wide in the bony palate, and wider in the velum. The columna nasi was entirely absent. The patient was in good health, and of a firm and decided character. He had no difficulty in deglutition, but his speech was thick and indistinct. On the 9th Oct., 1846, I operated mainly according to the plan recommended by Fergusson in an essay which he published in the Medico-Chirurgical Transactions for 1845. Sitting before the patient, I seized the edge of the uvula on the left side with Assalini's forceps, and rendered the left side of the uvula tense: then with a double-edged knife, I pierced the velum near the margin of the fissure and a quarter of an inch from its lower extremity, and cut up as high as the upper part of the velum, separating a narrow strip from the margin through its whole length, except at the inferior extremity, where the excision was completed with scissors. Then standing behind the patient, I removed a strip in like manner from the right margin of the fissure. I then, with a lancet-pointed scalpel curved flatwise, divided the levator palati on each side just below and behind the orifice of the Eustachian Tube. With blunt-pointed curved scissors, I then successively divided the anterior and posterior pillars of the palate on each side. Lastly, I made a transverse incision on each side along the junction of the velum with the palatine bone, dividing the buccal mucous membrane, and the submucous cellular tissue, but not extending through into the pharynx. After this, I passed three sutures, one near the junction of the velum with the bony palate, one about the middle of the velum, and one near the end of the uvula. I passed the threads through the left side of the fissure from before backwards with Weiss's curved needle fixed in a handle, and through the right side from behind forwards with very small curved needles held by Weiss's needle-holder. They were passed with ease, and the margins of the fissure were readily brought into contact. There was no tension: when the first knot was tied, there was no necessity for holding it with forceps while securing the second. The contact was perfect, and there was no strain upon the threads. During the operation, the patient frequently gargled his mouth with a strong solution of alum, an ounce to a pint of water, and the fauces were sponged with the same. The bleeding was moderate during the operation, but a slight oozing of blood continued for several hours afterward. The patient was directed to keep quiet, to avoid talking, coughing, sneezing, hawking, etc., to take no solid food, and to be very cautious, in taking liquids, to swallow them slowly and with as little effort as possible. For the first two or three days he took only milk, then milk thickened with meal, then soup, custard, rice-pudding, etc. On the 13th October, I removed the middle suture, and, on the following day, the upper one: the lower one had probably cut its way through, as I could not find it. Union took place perfectly throughout the whole extent of the wound, even to the tip of the uvula.

On the 21st October, union having become firmly consolidated, I undertook to close the fissure in the bony palate, according to the method suggested by Dr. J. Mason Warren, of Boston. (See New-England Journal of Medicine, April, 1843.) With a lancet-pointed scalpel curved flatwise, I peeled off the mucous membrane from the bony palate, from the margin of the fissure nearly to the gums. This dissection was attended with a pretty copious flow of blood, to restrain which,

a solution of alum was freely used. The portions of mucous membrane detached from the two sides nearly met throughout the anterior half of the fissure, but they were not much approximated at the posterior part. I then passed two sutures through the detached membranes on the sides of the fissure, one a little in front of the middle of the bony palate, and the other a little behind the middle. In tying the knots, the anterior one seemed quite easy; there was some strain upon the posterior one. I passed a third suture near the junction of the bony palate with the velum, but could not bring the edges together. I then made free incisions on each side parallel with the fissure, but still the edges could not be brought into contact. I therefore withdrew the suture, leaving an opening at the junction of the bony palate with the velum, about large enough to admit the end of a finger. The same regimen was enjoined as after the first operation.

Oct. 25th. I removed the sutures. Union had taken place nearly as far as the sides had been brought into contact.

Nov. 6th. Union has become firmly established at the anterior portion of the bony palate, including a little more than half its length: in the midst of the united portion is a small hole, about large enough to admit a common probe. At the junction of the hard with the soft palate is an oval opening nearly an inch in its long diameter. The patient's speech is considerably improved.

Nov. 7th. To fill up the hole which remained, I performed the following operation:—I again detached the mucous membrane of the hard palate from the bone with a curved knife as before; I then made an incision on each side parallel with the long diameter of the hole; I then made an oblique incision on each side from the lower end of the hole outward and a little downward upon the velum, extending half through its substance. Having refreshed the edges of the hole, I then brought the flaps together by means of two sutures. The parts when brought together were considerably upon the stretch, so that it was necessary to hold the first knot with a forceps while tying the second. I then passed one of the ends of the lower ligature through the upper edge of the velum, which I drew up and secured with a surgeon's knot. In this manner the chasm was entirely filled up.

Nov. 11th. I withdrew the sutures. The adhesion of the transplanted flaps to the velum had given way, and the flaps were slightly separated from each other at the lower part. The spaces from which the flaps had been taken were becoming filled with granulations. With a camel's hair pencil, I applied freely to every part of the wound twice a-day a solution of nitrate of silver, gr. v. to ℥j.

Nov. 18th. The flaps have separated entirely from each other: the right flap is also separated from the velum, and at the lower extremity from the adjacent portion of the mucous membrane investing the bony palate. The left flap adheres to the velum. The wound is granulating freely, and there is a prospect that the opening may be diminished in size. It appears to be now a little smaller than before the last operation. As the patient is anxious to return to his home in the country, and as his strength has become somewhat reduced by the repeated operations and the regimen to which he has been subjected, I have determined to postpone until another season any further attempts to close the aperture which remains.

Oct. 8th, 1847. I have not heard from the patient since the last date.

Case IV.—This differs essentially from those which precede it, the fissure being on one side of the median line, and not being congenital, but the result of a surgical operation.

Stephen Tagg, seaman, born in Boston, aged 20 years, of a rather slender frame and cachectic appearance, was admitted into the New-York Hospital, April, 1845.

The patient became conscious of some obstruction to his breathing about six months before he came to the hospital: he was aware of the presence of a tumor in his throat only six weeks before his admission. On examination soon after he came to the hospital, I ascertained the following facts:—The pharynx was occupied at its upper part by a large tumor which depressed the velum and carried it forward far in advance of its usual position. A finger could be passed through the fauces, and swept around the most depending part of the tumor so as to show that it did not adhere to the velum. The tumor was hard and uneven on its surface. On raising the velum, a portion of the tumor could be seen of a pale color, and bleeding slightly when rudely touched. The patient has suffered more or less from pain shooting through the tumor, and has had occasional hemorrhages which were not very profuse. I seized the tumor through the fauces with a tenaculum, and made an unsuccessful attempt to pull it away.

May 2d. I passed a wire noose by means of a double canula along the floor of the right nasal cavity, and then, passing my finger through the mouth into the fauces, endeavored to pass up the noose over the upper surface of the tumor to its neck; but the breadth and height of the tumor were such that I could not accomplish the object which I had in view. After a number of unsuccessful attempts to noose the tumor, I made with a scalpel a free division of the velum from its adherent to its free extremity a little on the right side of the median line. This brought the tumor more into view, and enabled me to carry up my finger higher on its posterior and upper part: but still I could not pass up the noose so high as to reach the neck of the tumor. I then seized the morbid growth with a tenaculum, and drawing it down, I cut off with a guarded bistoury its most prominent part. Hemorrhage took place to the extent of about eight ounces. Having gained additional space by this section, I made another effort to embrace the remainder of the tumor in a wire noose. I could not reach the neck, but I embraced a large portion of the tumor and tightened the wire, which at once arrested the hemorrhage. I then brought the edges of the wound in the velum together with three sutures, which I accomplished with great ease by means of Weiss's Staphylorraphy needles. Directed the patient to take no food but beef-tea, and that in small quantities at a time.

3d. Found patient in as comfortable a condition as could be expected. He breathes more freely than before the operation. Pulse 92. Skin natural. I tightened the noose. Continue beef tea with the addition of a little thin gruel.

4th. Complains of fetid discharge—pulse 120. Tightened noose. Continue nourishment as before.

5th. The lower suture in the velum has ulcerated through on one side, and the edges of the wound are pressed asunder by a projecting portion of the tumor. Tightened noose.

7th. The noose has been tightened daily. Yesterday the second

suture came away from the velum: there seems to be no union except at the upper part of the wound. The tumor as seen through the fissure of the velum is nearly black, and it emits an offensive odor. Pulse 96. In accordance with the patient's request, I allowed him fresh fish in addition to his beef tea and gruel.

8th. The tumor has descended lower in the throat; the suture of the velum has given way entirely. I attempted with the wire to pull the tumor away, but the wire broke. I then seized the tutumor with a tenaculum, and with very little force drew away so much of it as had been strangulated by the wire. The mass was about of the size of a hen's egg, and of a very dark color: a very moderate hemorrhage followed the evulsion of the tumor.

9th. The patient breathes more freely than before the tumor was removed; but he still feels an obstruction in the right nostril. He has a good appetite; pulse 112; tongue moist, but somewhat furred.

10th. He does not appear so well this morning; he complains of pain in his head and in his right ear. Pulse 140. No desire for solid food: stomach somewhat irritable. Emp. Epispast., Nuchæ.

12th. Pain in head and ear somewhat relieved yesterday, but has returned to-day. Pulse 160. Tongue moist and a little furred. Ordered spt. mindereri., ℥ss., every two hours.

15th. Patient much more comfortable. Febrile excitement greatly diminished. Pulse 104.

June 3d. Patient has continued to improve. The tumor has apparently remained stationary. To-day I made an attempt to dissect off the mucous membrane from the bony palate, and to remove a portion of the bony floor of the nasal cavity, in order to expose the tumor more fully, and to facilitate its removal. The hemorrhage during the dissection was very copious, and the blood flowing into the pharynx occasioned a very disagreeable sense of choking. Finally, the patient became so much disconcerted, that he absolutely refused to allow me to go on with the operation. For some time afterward he was in a state of partial syncope, but under the influence of stimulants he gradually recovered from that condition.

June 13th. The patient appears about as well as before the last attempt to remove the tumor. To-day I made another attempt to pass a noose of wire over the tumor, but was unsuccessful.

August 7th. To-day I drew the tumor down into the fauces with a tenaculum, and then seized it with a strong pair of curved lithotomy forceps, and after a number of attempts, in which I tore off small portions of the tumor, I finally succeeded in twisting off the principal mass, which was about two inches long, one inch wide, and half to three-quarters of an inch thick. There was free hemorrhage amounting to about sixteen ounces, and the patient became faint. A small portion of the tumor remained attached to the roof of the pharynx just behind the vomer.

August 22d. After the last operation, the patient appeared much prostrated, with a small frequent pulse and a pale complexion. He has, in some measure, regained his strength, but he still appears very pale. Within the last two or three days, he has been directed to take sulph. ferri gr. ½, with extract gentian gr. iij. three times a day. 30th. The surface from which the tumor was pulled away is suppurating, and the small remnant of the tumor has diminished somewhat in size.

Dec. 16th. Soon after the last report, the surface from which the tumor had grown was completely cicatrized, and there has not since appeared to be any tendency to the reproduction of the morbid growth. To-day I pared away the edges of the fissure, partly with a bistoury and partly with scissors, and then introduced three sutures. In cutting away the left margin of the fissure which was towards the median line, I had no difficulty; but on the right side, which was towards the side of the palate, I found that the incision necessarily encroached on the arches of the palate, and it was completed with much difficulty. About a pint of blood was lost during the operation. On attempting to bring the edges of the wound together, I found that they could not be brought in contact without great tension. I accordingly made a deep parallel incision on each side, and then drew the edges together, and then tied the sutures. The patient was directed to keep quiet, and to observe the same regimen as after the previous suture of the palate.

17th. The velum appearing somewhat inflamed, I directed a solution of nitrate of silver gr. v. to ℥j; to be applied once a day with a camel's-hair pencil.

19th. Apply solution twice a day.

20th. The edges of the wound have separated in the middle, and one of the threads has cut through on one side. I removed all the threads.

21st. The edges of the wound have separated throughout its entire extent.

The cure of cleft palate by a surgical operation, has not attracted the attention of surgeons until within the last thirty years. It is true that a solitary operation was successfully performed nearly a century ago, by a French dentist, named Lemonnier. But the operation does not appear to have been repeated until the year 1816, when it was performed, without success, by Graefe of Berlin. In 1819, Roux of Paris operated with complete success upon a medical man of the name of Stephenson. Since that time, the operation has been repeated, with variable success, a great number of times, by numerous surgeons in almost all parts of the civilized world. Important improvements have been introduced, both in the performance of the operation, and in the after-treatment. But still the operation is performed with considerable difficulty, and much uncertainty hangs over its results. I propose briefly to allude to some of the principal difficulties of the operation, and the most approved methods of obviating them.

One source of embarrassment in the operation is the depth of the cavity in which it is performed, and the inability or unwillingness of the patient to keep the mouth widely opened. It has been proposed to obviate this difficulty, in some measure, by the use of a speculum oris, having a powerful screw, by means of which the teeth of the lower jaw are widely separated from those of the upper. A variety of instruments has been contrived for this purpose, but they are all objectionable on account of the space which they occupy. The operation should not be performed until the patient has arrived at years of discretion; and if it be deferred until this period, the patient will generally be able to keep his mouth widely opened without the aid of the speculum. Difficulty is sometimes experienced in incising the margins of the fissure. The best method of accomplishing this part of the operation appears to me the following: seize the left margin of the fissure, near

the end of the uvula, with a clawed forceps or hook, and render it moderately tense; then with a sharp-pointed narrow bistoury perforate the velum from before backwards near the fissure, and a quarter of an inch above the extremity of the uvula, and cut upward as far as the junction of the velum with the bony palate. Then incise the right margin of the fissure in the same manner; and finally, with a sharp knife or scissors, complete the incision of the edges of the uvula. The next difficulty occurs in the introduction of the sutures. The facility of passing them depends very much on the shape of the instruments which are employed. I have made trial of several methods, but am best pleased with the course which I adopted in the case of Locke, (Case III.). This method consists in passing the sutures on the left side from before backward by means of Weiss's staphylorraphy needle, which is attached to a long handle and curved laterally, drawing out the thread with a forceps; and in passing the sutures on the right side from behind forwards by means of very short and very curved needles held in a needle-holder, and drawn through with forceps. To relieve the tension which exists in almost all cases when the threads are tied, a variety of expedients have been resorted to. The principal methods adopted for this purpose, have been the deep lateral incisions parallel with the fissure, as practised by Dieffenbach, the partial detachment of the velum from the bony palate, the division of the anterior and posterior arches of the palate, and the division of the levatores palati muscles. M. Fergusson is entitled to great credit for having suggested and carried into effect the last-mentioned method, viz., the division of the levatores palati muscles, which, in my opinion, contributes more than anything else to relieve the tension of the velum. Several of the methods alluded to may be advantageously combined, as in the case of Locke, (No. III.). With regard to the regimen to which the patient is subjected after the operation, a diversity of practice has been pursued by different operators. M. Roux enjoined entire abstinence from food and drink for several days after the operation: and a number of other surgeons have recommended the same course. It appears to me that this plan is not founded on correct principles; and there are facts on record which show that it is injurious in its practical results. By the dryness of the mouth and fauces which it induces, it provokes the muscles of the palate to increased action, and thus has a tendency to defeat the success of the operation. The privation of food and drink also produces a considerable amount of constitutional disturbance which is likely to interfere with the process of adhesion, and which, in delicate and irritable persons, may even lead to a fatal result. On the other hand, the unrestricted use of food and of drinks would operate injuriously, by calling into action the muscles of the fauces and disturbing the adhesive process. The best plan is to allow a moderate use of nutritious liquids, and of soft solids, such as custards, jellies, etc., directing the patient to swallow them in small quantities and with as little effort as possible.

I am inclined to the opinion that it is better to leave the sutures in place four or five days in ordinary cases, instead of removing them at the end of the second or third day, as recommended by Dr. J. Mason Warren, as the removal of the sutures at so early a period, must be attended with great risk of a separation of the edges of the wound.

ART. VI. *Summary of, and Observations upon, the Medical Practice of the New York Hospital, in the months of July, August, and September,* 1847. By JOHN H. GRISCOM, M. D. Attending Physician.

THE number of patients treated during my term of attendance the present year, (July, August, and September,) I think is unprecedented in the annals of the Institution. For a greater portion of the time, every bed that could possibly be accommodated was occupied, and on several occasions many were obliged to be denied admittance.

Patients remaining, June 30th,	174
" admitted in July,	185
" " " August,	208
" " " September,	215
Total treated in the three months,	782
Patients discharged in July, 214	
" " " August, 218	
" " " September, 211	
643	643
Remaining, October 1st,	139

Of the discharges in July,		In August,		In September.	
there were Cured,	172	Cured,	173	Cured,	156
Relieved,	5	Relieved,	6	Relieved,	9
Transferred,	1	Disorderly,	5	Request,	13
Disorderly,	2	By Request,	4	Died,	31
By Request,	10	Died,	30	Eloped,	2
Died,	24				
	214		218		211
				Total,	643

There were, on an average, about 150 patients under treatment daily, for the term of 92 days; and the deaths from all causes, were 85, being less than one per day.

TYPHUS OR SHIP FEVER.

The *Treatment* of this disease was based upon the idea of its proximate cause being *mainly* a vitiated, deficient and innutritious condition of the blood. I say *mainly*, because I have no particular theory as to the real nature of the disease, whether produced by a specific poison entering the system from without, as is maintained by some, or by a partial decomposition of the blood by others, or by a disorganization of the solids by a third party, etc. The most important point in my estimation to be considered, being its treatment, I have been disposed to look chiefly at its *remote causes*, and to endeavor to ascertain from a contemplation of them, what is required to overcome their effects.

The remote causes are two in number: 1st, an insufficiency of food, and 2d, the inhalation of a vitiated air. The first of these must necessarily produce an exhausted nutritive condition of the blood;—that fluid, under a protracted privation of nutriment, will not only be diminished in quantity, but its red globules, it is reasonable to suppose,

will become deficient in number and in those properties which are believed necessary to the health of the organism. Both these consequences are aggravated and increased by the second cause; for in the atmosphere of the steerage of a passenger ship, crowded to the utmost limit of the law, there must necessarily, one may easily believe, be not only a deficiency of oxygen, but an actual presence of other gases, whose chemical action upon the blood cannot but be deleterious, depriving it still further of its healthy properties.

I may be told that this brief view of the causes and character of ship fever is insufficient to account for the *febrile symptoms*,—that there is nothing in starvation, or want of oxygen, or the presence of deleterious gases, to produce *fever*. If any one who should raise this objection to the insufficiency of my position will tell us *what fever is*, I might then be able to discover a connection between it and the causes I have named. Until the *specific* nature of fever is demonstrated, it is in vain to argue about the nature of its causes, or to endeavor to trace the modus operandi of the influences which are supposed to produce it. But if we are to understand by fever, the frequent pulse, hot skin, thirst, etc., etc.,—then I answer, that ship fever, as it has been presented to us this year, is in very many instances, not a fever at all. Repeatedly have we seen patients brought from on ship board without a single symptom of fever; with pulse below the natural standard, skin moist and cool, fauces not dry, no thirst, and yet the body covered with petechiæ, the eye congested, the senses benumbed, and most of the other symptoms of the *Typhus condition*.

Confining our attention to this simple view of the causes of Ship Fever, we find little else to do than to counteract their effects. The means for this are clearly indicated, and may be classed under three general heads.

1st. To maintain the continuity of the body, and sustain its nervous energy, by stimuli, until we are enabled,

2d. To improve the quantity and character of the blood by appropriate nourishment; and

3d. To oxygenize the blood thoroughly by pure air.

For the first indication, after giving a warm bath, (an invariable rule where it could be borne), the most powerful and direct stimulants were found necessary. Brandy and carbonate of ammonia constitute the main reliance; and during my attendance I have been astonished to observe what enormous quantities of these remedies will be borne in this disease. As an instance, I may mention the case of a girl about 15 years of age, who took about 5 pints of brandy every day for 5 days, and for two weeks longer from 2 to 3 pints daily. At the same time she was taking 10 grains of carb. ammonia every 15 minutes, amounting to two ounces in twenty-four hours, besides soups and other nutriments. And all this without the least manifestation of excitement, or injury to the stomach, or bowels, such was the intensity of the disease. She was under this treatment nearly three weeks, before any very decided symptoms of improvement were manifested;—unfortunately, before time elapsed to observe the ultimate result in this case, and just as she was beginning to feel the good effects of the treatment, the patient had to be discharged "relieved," being removed from the Hospital by her parents. Many other cases might be cited, in which it was necessary to continue, night and day, to ply these remedies unceasingly;—a very

short respite was frequently sufficient to put the patient back decidedly, and a vast number of the cures were undoubtedly due to the faithfulness with which these means were applied. Where the circulation was unusually languid, or the extremities were cold, sinapisms and artificial warmth were very valuable.

To answer the second indication, the patients were fed at frequent intervals with nutritious soups, arrow root, or gruel, with wine or brandy, milk punch, egg-nog, beef, chickens, etc., etc.

Upon the third indication, pure air, I may remark, that on several occasions the necessity for it was strongly marked. The pressure for admissions several times became so urgent, that the bounds of prudence were quite overstepped, as was indicated by the fact that in certain of the wards which were most crowded, and contained the worst cases, the recoveries became more protracted, and the relapses more frequent. It became necessary to close two of the wards in the north building, and to have them thoroughly cleansed and purified. After this operation, and upon confining the number of patients in them to a reasonable limit, a decided improvement was manifested in the rapidity of recoveries, and convalescence. The position of a patient's bed in a ward, was observed to have an influence over his treatment. In the corners of the rooms, the patients got along more slowly than in the central parts, or near the doors or windows;—and I frequently found that when a patient had been lying for several days, in a part of a ward most distant from the windows, and was not doing well, a removal of his bed right under a window would, in twenty-four hours, produce a decided change in the symptoms for the better.

Although this was the general course of treatment, it was frequently varied to suit the condition of the patient. Occasionally a case would present a degree of excitement, with hot and dry skin and thirst, which called for the spirit. Mindereri, ice in the mouth and to the head, and the mildest diet; sometimes gastric irritation with nausea would demand a mild emetic, such as an infusion of euper. perfol. If the pain and heat in the head were marked, dry cups to the temples, or forehead, or blisters behind the ears, and application of ice, would generally be found sufficient. Pneumonic symptoms with cough frequently complicated the case; when these occurred, Stoke's expectorant, with dry cups, or vesication of the chest, formed the principal addition to the other treatment.

Sometimes there would occur such a combination of general prostration and external heat and dryness, as to indicate a combined stimulant and febrifuge treatment; such, for example, as the administration of carb. ammon; or a half ounce of brandy, alternately every hour or two hours, with a half ounce of spirit. Minder.; and so frequent and sudden were the changes, in many instances, from one condition to the other, an almost constant watching was necessary to withhold the one or the other, and again resume it. In fact, the varieties and shades of symptoms were almost infinite, and called for an endless variation in the means of relief. To enumerate them would take more time and space than could be reasonably asked. There were many cases, however, for which no other treatment was necessary than good diet and cold water. Cleanliness, pure air, and food, appeared all-sufficient for the removal of the disease, even in well-marked cases, not a particle of medicine being administered to them.

Local Complications.—A tendency to Erysipelas prevailed in some of the wards, during the whole of my attendance. No exact account has been rendered of the number of Typhus cases in which it occurred, but they probably amounted to about 20. It attacked the face and head in every instance. Its treatment did not vary from that required under ordinary circumstances, except so far as the Typhoid condition of the patient required. Cooling applications to the part affected, with internal stimulation, constituted the general course, with complete success in every instance but one, who died from the Typhus fever, his condition from the first having been desperate. One case will justify more detailed notice. It was that of a nurse, who contracted the fever from his patients; he recovered, and returned to duty; in two weeks he had a relapse, from which he recovered slowly, and soon after getting to duty again, had a second relapse, accompanied with Erysipelas in the face and head. The frequent attacks of the fever had so reduced him, that now, with the Erysipelatous complication, it seemed almost in vain to prescribe for him, especially, when in a few days the most serious symptom of all occurred, viz: great heat of head and evident congestion of the brain, attended with delirium and total unconsciousness. His eyes were entirely closed by the swelling of the integuments, the tongue was dry and black, the pulse frequent and feeble. A more hopeless combination of circumstances could hardly be imagined. Depletion, even local, from the head, was totally forbidden by the prostration; and stimulation by brandy, and carb. ammon., while contributing to sustain the general strength, seemed to add to the difficulty in the head. In this posture I resolved upon the exhibition of a remedy, which I am not aware has been before tried under similar circumstances. He was directed to have *five grains of Hydriodate of Potassa, every hour.* The effect of this (supposing the "post hoc" to be the "propter hoc") was magical, for in 24 hours there was a decided diminution of the cerebral congestion, and the patient rapidly recovered. The remembrance of the efficacy of this remedy as a deobstruent in certain conditions of the brain in children, especially in Hydrocephalus, both the true and simulated form, induced the hope of obtaining a similar usefulness from it in the case I have mentioned. Further observations, it is hoped, will test its efficacy in the same condition of the adult brain.

Dysentery was also a frequent complication of the fever, and a majority of the deaths which occurred in the latter part of my service, were produced by it. The force of the disorder fell so frequently upon the intestinal canal, as to assume an endemic character in the month of September; and the occurrence of this complication, accompanied as it generally was by purulent and bloody stools, was justly dreaded.

Some of the cases which, at the outset, threatened most seriously, yielded to treatment; but it would seem, judging from the post-mortem appearances, and the rapidity with which the patients sank, that the disorganization must, in many cases, have proceeded to an incurable degree before our attention was called to it by the patient. This was chiefly owing to the anomalous fact, that, even in some of the severest forms of the dysentery, there was little or no pain evinced.

The degree of disorganization of the mucous coat, in those cases which were post mortemed, was most extraordinary, surpassing, in many instances, anything before within my experience. In some

cases not a trace of healthy mucous membrane was discernible in the large intestine, from the ilio-cœcal valve to the anus; but from every point blood and mucus or pus appeared to have been discharged, clearly demonstrating the utter incurability of the disease. Copious deposits of lymph-like matter were seen, forming *bas-relief* patches, and giving the idea, without close observation, of ulceration at the intermediate points. In one particularly-severe case, the entire mucous coat of the colon bore a resemblance to the rough bark of a tree, the elevations of the new deposits were so great and uneven. The color in this case was greenish.

When this complication was diagnozed sufficiently early, the administration of Tannin, and nit. argent., both by mouth and enemata, opiates, blisters and bland diet, frequently diminished the force of the disease, and sometimes with a successful issue; but the impossibility of direct applications to the ulcered surfaces, and the necessity of dependence on general treatment for a local disease, placed this disorder among the most dreaded.

When *Diarrhœa* formed the principal complication, the great sheet anchor was opium. This rarely failed to keep it in check, if administered to a sufficient extent. It was sometimes prescribed in conjunction with tannin, one to three grains of the latter, from three to twelve times a day, or with nitrate of silver, $\frac{1}{4}$ to $\frac{1}{2}$ a grain every 2, 4, or 6 hours, according to the severity of the symptom; but generally opium alone was found sufficient, while it seemed to have a happy effect, also, upon the febrile symptoms. Held in abeyance by the opium, the diarrhœa, as the general disease abated, and the strength improved, would gradually disappear.

One case of typhus was complicated with pregnancy of about four months. The patient aborted, but the uterus had not sufficient power to expel the secundines. No hæmorrhage ensuing, and the patient being too much prostrated to endure any direct treatment for their removal, they were left, and were retained five days, when they were spontaneously expelled, and the patient recovered in the ordinary time.

Delirium, which was a frequent complication, was usually controlled by cups or blisters to the temporal and mastoid regions, and by the exhibition of morphine or Dover's powder. Large doses of these sedatives were borne with entire impunity, and the most happy effects. In two cases, (young females,) the mind continued to be disturbed so long after recovery, as to give rise to apprehensions of confirmed insanity, but they happily recovered perfectly.

There were several other complications, such as jaundice, laryngitis, &c., but being only isolated cases, require no special notice.

The following tables, prepared from the books, exhibit the results of the treatment of typhus:—

Cases remaining June 30th - - - -	134
Admitted in July - - - - - -	100
" August - - - - - -	126
" September - - - - -	107
Whole number cases of typhus in three months,	467

Of these there were discharged

	Cured	Relieved	Disorderly	Request	Died
In July, - - - -	128	1	1	2	14
In August, - - -	108			3	13
In September, - -	94			1	19
	330	1	1	6	46

Whole No. cases typhus discharged, - - - - 384
" " " remaining, Oct. 1st. - - - 83

Per centage of cures, - - - - - 85.93
" " relief - - - - - 2.10
" " deaths - - - - - 11.97

In a considerable number of instances, however, in which the result was fatal, death was attributable not directly to typhus fever, but to some other disease, which made its onset in the enfeebled state of the patient during convalescence; so that the ratio of deaths from typhus alone would be materially less, amounting to perhaps 8 or 9 per cent.

Especially was this the case, as already stated, in September, when dysentery prevailed endemically, and was the immediate cause of death in many cases of typhus, but in which the fatal result is assigned to the credit of the latter disease, on the books. One of the deaths recorded as by typhus entered the Hospital with a *fifth attack of delirium tremens*, from which he recovered; but before being discharged, being subjected to the prevailing infection, he gradually sank, though with hardly sufficient character of typhus to be added to that list. There are probably very few persons capable of surviving five severe attacks of mania à potu.

The whole number of *Autopsies* in the three months (of typhus) was - - - - - - - - - -		10
The head was the principal part affected in - -	1	
The chest - - - - - - - -	1	
The head and abdomen both - - - - -	6	
Nothing special was found in - - - -	2	
	—	10
Peyer's plates were prominent in -	4	
" " ulcerated in -	2	
	6	

In every case where the bowels were affected in either of the ways specified, the membranes of the brain were congested, or there was free serous effusion, or both.

In one case in which the plates of Peyer were prominent, they were enormously large—some of them, near the end of the ilium, exceeding 6 inches in length.

There were two other autopsies of persons who had been entered as cases of Feb. Remit., but the description of which leaves room to doubt whether they had not the typhus infection. In one, the membranes of

the brain were congested, and there was bloody effusion. In the other, there was effusion in the cranium, and the liver was enlarged, congested and bronze.

Dropsy. Six cases of this disease were under treatment: three of them were the result of granulated kidney or albuminaria, one was ovarian, one was produced by disease of the liver, and in the other the cause was uncertain.

Of the albuminous cases, one, an elderly woman and a chronic case, died a few days after admission, being overwhelmed with the effusion; one was discharged cured, and the third was left under treatment, very much improved, and in a fair way to recover entirely. The treatment in these successful cases consisted in the administration of hydrogogues for the direct removal of the fluid, and of bi. chlor. of mercury for the original disease. The latter was given in doses from 1-16 to 1-4 grain ter in die, in solution in tincture of bark one drachm. Under a steady exhibition of this, the albuminous deposit of the urine disappeared entirely in one case, and was considerably diminished in the other. In the latter of these albuminous cases, and also in the hepatic case, the hydropic effusion was so great as to demand attention to its immediate diminution, for the relief of the respiration and circulation of the patients, before proceeding to the radical treatment. Desirous of avoiding the necessity of paracentesis if possible, it was determined to make a fair exhibition of *elaterium*. It was given in both cases, and with the most happy results. The third of a grain in the hepatic case produced from thirty to forty stools, reducing the size of the abdomen in one night one half, and, according to the patient's own account, without any irritation worth speaking of, except on one occasion when he took two doses, contrary to orders, a few hours in succession. This patient took in all nearly 7 grains, and was fairly enamored with the "little pills." The albuminous case took 13 pills of 1-4 grain each, with an equally happy result; and being very soon put on the use of the bi. chloride and tinc. bark, the anasarac was kept down, and he was left greatly improved.

Dysentery. Eighteen cases of this affection in its acute form were received; of these 2 came in in July, six in August, and ten in September, showing the greater prevalence of the disease in the latter part of my attendance, as has been before stated in reference to its influence over the mortality of the ship fever. One case deserves particular notice, in consequence of the exceedingly rapid and extensive disorganization of the mucous coat of the colon. The patient was an English army officer, said to be here in some official capacity, who was attacked at his hotel with bloody stools. After a sickness of a few days, during which he kept his bed but a very short time, he was removed to the Hospital, where he entered on Saturday evening, and died early on the following Monday morning, having been in about thirty-six hours only. As related by Dr. Washburn, the Resident Physician, the only symptom of moment, was discharges of bright red blood in great profusion, which were entirely uncontrollable. The autopsy, the only part of the case which came under my personal observation, presented the most extraordinary appearance. The disease was confined to the colon, the inner coat of which, in its whole extent, was of a brilliant red color, with profuse lymph-like exudation upon its surface. No other evidences of disease were found. This case presented a type of the

then prevailing disorder, characterized by profound enteric disorganization with less than usual pain and fever. Of acute *diarrhœa* there were twenty-four cases admitted, ten of which were in each of the months of July and August, and only four in September, thus far displaying an inverse prevalence to that of dysentery. As the latter increased, the former decreased. In this respect, as well as in its progress and cadaveric appearances, there was evidently a specific cause producing this form of dysentery, its influence extending over other diseases also, and greatly modifying them.

The only other case worthy of special notice was one of gangrene of the lung, left side. The amount of gangrenous matter expectorated was not great, but seemed very decided in character; the disease was accompanied with much fever and pain. Blisters, preceded by local depletion, Stokes' expectorant, Dover's powder, and as a specific, drachm doses of a strong solution of chlorine constituted the principal treatment, under which and a moderately stimulating diet, recovery gradually progressed.

ART. VII.—*Observations on Amalgam and other Materials used as Filling for Defective Teeth, with cases.* By JOHN TRENOR, M. D., Dentist, *New York.*

MUCH having been published, of late, in the newspapers, on the subject of the combination of silver and quicksilver, for filling the cavities of decayed teeth; and its relative advantages and disadvantages, as compared with other materials heretofore employed, for the same purpose; and as the statements put forth have been exceedingly contradictory, the writer proposes to place before the public, such information on the subject, as he has been able to obtain, with the hope, that it may assist those who feel interested in the matter, in arriving at conclusions more definite and satisfactory.

For the purpose of being more clearly and distinctly understood, the articles investigated will be arranged separately and in succession, and their respective properties examined in the same order.

Gold Foil, as a filling for cavities in the human teeth, would seem to claim our consideration first, because, there is no evidence before the profession, that can, in the slightest degree, weaken the confidence which has long been reposed in it, over every other article, heretofore discovered, for this purpose. This confidence rests upon its superiority in purity, durability and color.

Of its purity,—although the exposed surface of a gold filling, will discolor in the mouth, where persons are inattentive to brushing them every day; and in an unhealthy state of the secretions, or a diseased state of the soft parts, will, sometimes, become of a very dark color, still no part of this discolored surface, which is always very superficial, is ever removed or taken up by the secretions; nor will it impart to the latter any metallic taste or odor; neither does any diminution or removal of this exposed surface ensue, no matter what length of time this gold filling may have been in the mouth; so that the proof is conclusive, that even where want of attention to cleanliness and disease combine, they can only affect gold fillings to the extent of discoloring their exposed

surfaces; but it imparts neither taste nor odor to the secretions or the breath.

Of its durability—In this particular it may be considered altogether satisfactory. *Whenever the sound substance of the tooth is strong enough to admit of that degree of pressure which is requisite to bring the gold into a solid mass.* When this is admissible, and it should *always be done, if possible*, it will, even where exposed to constant friction and pressure of masticating, as on the grinding surface of a tooth, wear down only with the tooth itself.

Of its color—In this respect it is far from being all that could be desired; it is too deep a yellow, so that if the tooth be very thin, and more particularly, if the healthy color of the tooth be of a pearly white, or an approach to it, and this is not unfrequently met with, the deep yellow of the gold will sometime show through. Still, even in its color, it is as far superior to all other materials possessing any merit as fillings, as it is in its other qualities. Upon these points, it is believed that there does not exist any difference of opinion among educated and experienced professional men. But as to the material which should rank next to gold, there has arisen within a few years, and still prevails, a great diversity of sentiment among the same class of persons. Up to the period indicated, the profession was pretty unanimous in classing tin foil next to gold, as a filling for teeth; and after tin, though much beneath it, came cement of various kinds, fusible metal, gums sandric, mastic, &c., &c., all of the latter of but doubtful efficacy and short-lived reputation. Tin foil, however, has long been very much used, and is still employed to a considerable extent. It possesses this advantage over gold, that it does not require near so much pressure in the same bulk to bring all its particles into one uniform mass. Where, therefore a tooth has become so thin, from the extension of decay, that there would be a risk of its breaking, under the degree of pressure which gold foil would require, tin foil has been substituted. For the very reason, however, here given for its use, (its greater degree of softness,) it must obviously be, and is, less durable than gold. Wherever it is exposed to much friction, as on the grinding surface of a tooth, and particularly, if the cavity be large, and the surface of the filling consequently broad, it is too easily worn away in masticating. Its color, even if it did not change in the mouth, is an objection, as it has nothing of a yellow shade, nor any other which assimilates with that of the tooth. It much more readily, and under similar influences, much more deeply discolors on its exposed surface than gold, giving to the tooth into which it is put, particularly if the tooth be very thin, and the mass of filling consequently large, a dark bluish shade. This can be, in some cases, very much remedied, by brushing, unless the tooth be so thin as to admit of but slight pressure in putting in the filling, in which case, the brushing, necessary to keep the surface of the filling bright, will be likely to bring it out altogether. There is no reason for supposing, however, that the discolored portion of the exposed surface of tin foil filling is, any more than gold, soluble in the saliva, therefore cannot be imbibed into the system.

The next article, because of its more recent introduction to the notice of the profession, claiming to be considered as a filling for defective teeth, is a combination of silver and quicksilver, and which under the appellation of Amalgam, is now generally intended to be designat-

ed. This is the material which has given rise to so much diversity of professional opinion, already alluded to, and has called forth statements from practitioners, so entirely contradictory, as to render it very difficult if not impossible, for the public, to know what to believe, or what to disbelieve, on the subject. For this reason, it requires, and will receive a more extended and minute examination, than the articles already treated of seemed to call for.

The points, most important to the community to understand in this matter, are first, whether this amalgam possesses any advantages over articles already in use; and if so, secondly, whether, when used as a filling, it is harmless and safe. After discussing these points, the writer will proceed to examine the objections to which it is liable, as well as some of the more prominent ones, which have been, erroneously, charged upon it.

Of its advantages, the most prominent and peculiar one, is the tenacity with which it adheres to the surrounding surface of a cavity into which it is put. In this respect, it is exceedingly remarkable, and far surpasses that of any other material with which we are acquainted.—It will, as it were, fasten to a surface, harden, and adhere, where there is so little of a cavity, that neither gold foil, nor tin, nor anything else, can be made to remain, at all. There is no filling that can be put in, with the same certainty of its remaining, and this too, even when carelessly done. Indeed, its superiority in this particular, can neither be denied, nor doubted, by any one practically acquainted with it. This, however, is not its only superiority, nor, in the estimation of, at least the patients, its chief one; for the fact, that it requires so little pressure to fill a cavity as scarcely to indicate that the operation is progressing, enhances greatly its value, and extends, widely, the circle of its usefulness, by rendering it applicable to a large class of cases of very thin teeth, which, before the employment of this composition, were altogether useless, and were, very generally, extracted. These two considerations, make it particularly applicable, and exceedingly serviceable, as a filling for children's first teeth. To prevent these little patients from suffering, and preserve their teeth until they loosen, from the advance of the second set, is all that is desired; and with this substance it can be done, without subjecting them to the annoyance of tedious and painful operations. But, when, to these considerations, is added the fact, that, when properly prepared, it gets harder than gold, put in in the best possible manner, its value, as an auxiliary in the practice of dentistry, can hardly be overrated.

Of its safety.—As much pains have been taken to create a belief that the amalgam is poisonous, and, therefore, dangerous to have in the mouth, from which it enters into the system, by being dissolved in the saliva, or otherwise, through the channel of the absorbents; and infinite industry used to spread this belief before the public, it is obviously required, that in this particular, it should be very fully investigated. As preliminary to this inquiry, and a very important point in the examination, it must be borne in mind, that this amalgam has been used, as a filling, for about twelve years. At first, its use was somewhat circumscribed; but after a while, it rapidly increased, until now it probably amounts to as many cavities filled with it, as of all other materials put together. It is true, that a very large number of these fillings are very badly done; but, for the puspose now under consideration, this is a

matter of no moment whatever. It is to the fact only, to which it is necessary now to advert, because it shows, clearly enough, that there can be no deficiency of evidence in the case, no matter on which side it preponderates. That it is a fact, the profession, both for and against its use, as well as a large portion of the public who have had it put in their teeth, can bear ample testimony.

The first cases which fell under the writer's notice, were the cause of so much irritation to the patients, as to render it necessary to remove the fillings; but this was owing to the careless and improper manner in which the operations had been performed, and in which, had gold or tin foil been used, would have required, in like manner, to have been removed. Cases of this character continued, every now and then, to present themselves; but, during the same period, very many were met with, and which were gradually, but constantly, increasing, in which no inconvenience whatever was experienced by the patients; and in some instances, as already stated, and those not a few, in which teeth were made serviceable, that without this filling would have been altogether useless, the teeth being too thin to bear without breaking, the pressure necessary to retain in their cavities any other serviceable material. Shortly after this amalgam was brought to the notice of the public, a very strong outcry was raised against it, by many prominent members of the professsion, here and elsewhere, asserting, among other objections to its use, that it was injurious, and even poisonous, to the system. Although the writer of this had never met with a case in which there was the slightest ground for a suspicion of this kind, still the positive assertions to the contrary then made by such professional authority as has since been so conspicuous in reiterating, through the newspapers, the same objections, induced a hesitancy, and a consequent delay, in the use of the article, which otherwise would not have occurred. It was in this state of things that such cases as the following came under the care of the writer, which naturally gave rise to doubts, as to the correctness of the observations and assertions put forth against the use of this amalgam, and which assertions, further experience has amply shown to have been entirely erroneous. These cases are selected, because, independent of their bearing upon the point under examination, they also illustrate others of equal practical importance.

Was consulted by Mrs. C—— for relief from very severe pain in the gums of the right side, more particularly the upper ones, from which it extended, frequently, over the whole side of the face and head, being, at times, exceedingly intense. She had been in delicate health for the last year, and it was within that period that her teeth, for it was to them that she had attributed her sufferings, had commenced to trouble her. She was of a rather delicate nervous temperament, but otherwise, had generally enjoyed good health until after the birth of her first child.—Since then, and particularly after the death of this child, her health has been feeble, suffering often and severely from nervous sensitiveness and great prostration of strength. Her teeth, as she stated, giving her more or less uneasiness, and sometimes, intense suffering. Her teeth are very defective, particularly the back ones, almost all of which have been filled many years ago. Of these, the first and second superior molar teeth, on the right side, she was told, would not bear the pressure of gold or tin foil, and were, in consequence, filled with the amal-

gam of silver and quicksilver, nearly four years ago. From that period, until within a year, she used those teeth without inconvenience of any kind, although the first molar tooth, was a mere shell, the filling extending from the enamel of the grinding surface some distance up the root, and above the gum, the vessels within the internal cavity of the tooth, having been dead a long time before this last filling was put in. It is only since her general health has been enfeebled that she has also been a sufferer from what she considered to be her teeth. Immediately previous to consulting me, she had applied to a professional gentleman, who assured her that the cause of all her sufferings was the material with which those two teeth were filled, and that she could not be cured until those fillings were removed. She informed him that the fillings had been in for three years and better, during which time she had constantly masticated upon the teeth, without even experiencing any inconvenience, and she was unwilling, therefore, to have them touched. He alarmed her, however, so much, by a detail of the distressing consequences of having such fillings in her mouth, that she finally consented to his removing this amalgam. But, in doing it, he caused her such intense suffering, that she determined not again to return to him. It was at this stage of matters that she called on the writer. She complained exceedingly of the pain she experienced about the teeth from which the fillings had been taken out, more particularly at night, though she was, at no time, entirely free from it. The whole of the gum on the right upper side, from the eyetooth back, was very much inflamed, as well as the under gum of the same side, though in a much less degree. The feeble state of her general health, together with the sensitive state of her nervous system, were obviously, the predisposing cause of the unhealthy state of her gums; and the changes in the weather, indigestion or other derangement of the stomach, the exciting causes of their present unhealthy appearance and of her sufferings. It was in this unfavorable state of things, that her previous professional adviser determined, unfortunately, to remove the fillings. Whenever, as in this instance, there is inflammation in the parts, exterior to the teeth, any pressure upon the teeth increases the suffering, even when the inflammation is but moderate; but if the inflammation is severe, the patient cannot bear to touch the teeth, even with the tongue; and complains also, of the teeth being longer than the adjoining ones. This is owing to the swelling of the membrane connecting the teeth and sockets together, which causes the teeth to protrude in proportion to the swelling of this membrane; and although this be only the thickness of a piece of paper, they are nevertheless thus caused to come sooner, than the rest of the teeth, in contact with their opponents, by which they are forced down upon this inflamed and swelled membrane, which gives a great deal, sometimes, excessive pain. For these reasons, the pressure and violence done in removing the fillings, in this case, necessarily augmented her sufferings, as she described. The correct course would have been, supposing it proper to have removed the fillings, first to reduce the inflammation from the surrounding soft parts, and then the fillings could have been taken out, without pain to the patient, or risk of after sufferings. But the fact was, that the fillings, in this case, so far from having had any agency in producing the deranged state of the gums, had an opposite tendency, by preventing the accumulation of food in the cavities, and enabling the patient to keep the parts around the

teeth clean. The indications in this case were, first, to reduce the inflammation; secondly, to refill the cavities in the teeth, from which the fillings had been injudiciously and unnecessarily removed; thirdly, by astringent applications to the gums, to harden them and render them less sensitive; and fourthly, by a course of tonics, attention to exercise, and regularity of habits, and light nourishing diet, to invigorate, and give tone and strength, to the whole system. The two first were not long in accomplishing; but the latter required much more time, and to aid which, a residence in the country during the summer was adopted. The inflammation and pain recurred after some time, but was now located in the opposite side of the mouth, where no amalgam fillings had ever been put in. By proper and prompt attention it was very soon removed.

Case of Mrs. C., aged 22, of very nervous temperament, but her general health is very good. Her teeth began to decay while she was quite young, some of which were then filled. She had suffered so much in these first operations, however, that she allowed many of her back teeth to decay, without having them attended to. Seven years ago she went to Paris, where she had fifteen cavities in her teeth filled with amalgam of silver and quicksilver, which she was induced to have done because she suffered so little inconvenience during the operations. In four or five of the teeth, the vessels in the internal cavities were dead, but not so in the others. For five years after those teeth were filled, she felt no inconvenience from them, except one, which sometimes gave her pain, but soon passed away. Two years ago her health became delicate, and she suffered very severely for a while from what appeared to be tic douloureux. After using a number of remedies, her physician finally cured her with quinine. Recently some of her teeth began to decay, and she again visited, for the first time since her teeth had been filled with amalgam, the professional gentleman referred to in the previous case, to whom she mentioned how much she had suffered within the last two years, as already stated. He at once pronounced it to be owing to the amalgam fillings she had in her teeth. She was then annoyed a good deal by a lower back tooth which had been thus filled seven years ago, and from which seemed to originate the pain she had experienced when under treatment for tic douloureux. The degree of pain she now felt would recur at intervals of two or three months, in or about this tooth (the second inferior molar tooth, left side, the first molar tooth having been lost years before), and in a day or two it would pass off, when she could masticate upon it as well as any of her others. In the spring and fall, however, it would be so severe as to oblige her to apply to her physician, who cured her with quinine. But her dentist assured her that her sufferings were caused by the poisonous effects of the amalgam, and that this tooth, in particular, it was too dangerous to keep in her mouth, and must be at once extracted, and insisted upon and did immediately perform the operation. As the tooth had been a very useful one for years, with the exception already stated, and as its loss rendered that side of her mouth almost useless for masticating upon, nothing would have induced her to part with it, but the alarm which his representations had occasioned. He added, that if she wished to be free from danger and suffering, she ought at once to have the other teeth extracted in which this amalgam had been put. This

closed her professional visits to this gentleman, as her husband would not consent to her returning after such an operation and advice. The correct explanation of the cause of her sufferings was this:—As already mentioned, the vessels in the internal canals of several of her teeth were dead. In this state of a tooth, which is a very common one, the dead vessels, just without the point of the root or roots, keep the soft parts with which they are in contact, in a state of morbid sensitiveness, so that when the system becomes excited as from taking cold, derangement of stomach, etc., etc., etc., this morbidly-sensitive membrane is very apt to inflame, and if severe, causes most acute suffering, requiring, frequently, active general and local depletion to remove it. In the case of this patient, after the first attack she had, which continued a considerable time before it subsided, it recurred, but in a milder form, and had not her nervous system been so very sensitive, she would hardly have required medical treatment—it would have subsided of itself after a day or two's continuance. Such cases are exceedingly common. But in so irritable a nervous system, it caused such acute pain as to call for medical aid, and was removed by quinine, giving plausible indication of its being tic douloureux. Latterly she was seldom troubled with it except in the spring and fall—the time when, from the weather being most changeable, these complaints are most prevalent. It is hardly necessary to add, that the amalgam fillings had no agency whatever in producing the pain she had experienced. It was a consequence of the death of the vessels in the internal canal of the tooth; and the loss of the tooth, therefore, a useless sacrifice.

The first of these cases was one of phlegmonous inflammation, supervening upon an exceedingly-nervous temperament, which every medical man knows is totally different, both in character and appearance, from that state of the gums resulting from the peculiar action of mercury, and requires a different course of treatment. Here too, from not knowing the true nature of the derangement in the gums, an operation was performed which was altogether uncalled for; but which, even if it were required, should not have been done in the then state of the gums, because it necessarily increased the irritation of the parts already too much excited, and greatly aggravated the patient's sufferings. These cases, therefore, show, not only that uncalled-for operations, useless loss of teeth, and increased sufferings, were a consequence of a want of medical knowledge; but that, from the same cause, opinions altogether erroneous were formed, and statements altogether unfounded were promulgated. But a closer investigation will prove how entirely groundless is the assertion, that this amalgam can be taken into the system, or can act upon it in any manner whatever.

Certain *preparations* of mercury, it is well known, produce, under certain circumstances, very powerful effects upon the human frame; but in order to do so, it requires to undergo a change in its composition and character, which, in the form in which we find it in this amalgam, it never does or can undergo. It requires a degree of oxydation or a minuteness of division which renders it useless, and altogether impossible to employ for the purposes of a filling. The two characters are entirely inconsistent with each other. If the quicksilver in the mixture undergoes such a change as to allow of its mercurializing the system, it will not answer as an ingredient in the filling, and vice

versa. In the combination it forms in this filling, and as long as it remains so combined, it cannot affect the system. In the amalgam, it is in combination with a large portion of silver. Now before the system can become subject to its mercurializing influence, it must first become uncombined from the silver, which is impossible because of its stronger affinity for that metal than for oxygen: and, secondly, must then recombine with such a quantity of oxygen as it cannot be made to unite with in the mouth. Add to this, that the exposed surface of the filling itself must also have lost its cohesion; to have become quite soft; and to have very perceptibly diminished in quantity. But when in the face of all these impossible, yet absolutely necessary changes, to make valid the objections under consideration, we find it after one or two or five or ten years of use in the mouth, still presenting the same appearance, solidity and quantity, as when first put in; and that there is not, nor ever has been, a single symptom of mercurial action, local or general, upon the system, the fallacy and folly of the objections urged against it are almost too glaring to be worthy of serious argument to refute. With equal propriety might it be urged against gold, that because when highly oxydized, it becomes a very powerful medicinal agent; therefore it should not be used as a filling for defective teeth. Such cases, too, as those which have been given, afford evidence enough that the error of those opposed to the use of this amalgam on the ground of its dangerous and poisonous effects upon the system, proceeds from a want of discrimination between diseases totally different in their cause, character, treatment and consequences. But the fact that this amalgam has been in use for about twelve years; and that, for some years past, wide-spread has been its use, and vastly is its use increasing in and about this city, and everywhere else in this country and abroad; and that numberless, it certainly may safely be said, thousands of these fillings have been put in teeth, where they are known to have remained for periods varying from one to eight and ten years; that there is no alteration or diminution on the exposed surface of such fillings where it is not necessarily worn down by chewing, and that not a single authenticated case has ever been produced by physician or dentist, of illness or injury resulting from its use, it seems impossible to desire more conclusive testimony that, as regards the health, nothing can be employed more entirely harmless. To test or examine the value of an important professional point upon the loose, hearsay evidence resorted to in the case of Mr. Ames, would be a degree of trifling with our readers and the public that the writer feels no disposition to indulge in.*

The next point to be considered is, as to its durability as a filling, and its efficiency and permanency in preventing the further progress of decay. All that can be said upon this head is, that it has not been in use long enough by those who know how to perform operations with skill and judgment, to justify a positive assertion about it; but there is good reason to believe, from observation and experience, that

* Since these remarks were penned, the writer has been kindly permitted the perusal of a letter to the editor of this Journal from Dr. Bemis, the physician of Mr. Ames, from which it conclusively appears that he never dreamt of attributing his illness or his death to amalgam fillings, or to any operations whatever upon his teeth.

it is most satisfactory. Time, however, and time only, can solve this problem with certainty. The writer has used it himself in very many cases, and a much greater number have come under his observation, and are constantly recurring and rapidly increasing, in which this amalgam has been in teeth from one to seven and eight and ten years, in which the teeth present every indication of being as perfect as when the fillings were first put in.

The strongest objections, and the only sound ones, to the use of this amalgam, and very serious ones they are, are its colour and the readiness with which its exposed surface discolors. In these particulars it is more open to censure than even tin foil, because when prepared it is more of a bluish color than tin; and when the exposed surface discolors, which it does quite as readily as tin foil, the contrast between the tooth and filling is stronger, and therefore the appearance to the eye more objectionable. But it possesses this decided advantage over the tin, it adheres so tenaciously to the surface of the cavity of the tooth, and becomes so hard, that, even though the tooth be a mere shell, the necessary brushing, to keep the exposed surface of the filling bright, can be always applied without the risk of bringing out the filling, which, it has been shown, is not always the case when tin foil has been used. It is, however, a serious draw-back to it as a filling, that it does not assimilate at all in color with that of the teeth, and that it so readily discolors. The very dark appearance, however, which an immense number of the teeth present, in which this filling has been put, must not be charged upon the filling, but to the want of skill and knowledge in the operators. Indeed there is no operation performed upon the teeth in which greater deception can be practised than in filling with this amalgam. The tenacity with which it adheres to the surface of a cavity, and the certainty as well as length of time that it will remain there and harden, though no pains may have been taken either to remove the decay or to prepare the cavity for receiving the filling or in putting it in, all concur to render the public more open to imposition when this article is used, than when any other with which the profession is acquainted. It is astonishing what a length of time it will remain in a tooth, under all the above disadvantages, in their most objectionable form. This was one of the considerations which weighed most powerfully with the writer to induce him, in the first instance, to make trial of it. The interrogatory very naturally presented itself, that if, under such disadvantages, it succeeded so well, how much more might we not expect from it when the circumstances under which it was employed were reversed? and every day's experience tends but to realize those flattering expectations.

The other objections to the use of this amalgam, so obviously proceed from a want of correct observation and discrimination, as scarcely to call for refutation. A few remarks will suffice to show this. It has been asked in a manner implying that a correct answer could be given only in the affirmative. did not this filling cause the death of the internal vessels of the tooth? inflammation of the investing membrane of the roots? brittleness of the tooth, etc., etc.? It is only necessary to observe, that these may be the consequences of operations improperly done, but never of the material used for filling, the character of which has no influence whatever in the matter. The same effects are constantly met with when gold or tin foil has been employed, and also

where no fillings have ever been put in. The cause of such results in *all* these instances, is the *extension of the decay in the tooth.* Even though a tooth be filled, if the operation be improperly done, the decay will continue to progress until it reaches the internal vessels of the tooth, and then the consequences above referred to will be very apt to ensue. Again; it has been said that the only advantage in using the amalgam was, that it enabled the operator to perform a number of operations with it, while he would be accomplishing one with gold or tin foil, seems almost incredible, when every one who has ever had an operation properly done, knows full well, that from two-thirds to three-quarters of the time consumed in it, is taken up in preparing the cavity for receiving the filling; and in many of the cases in which the amalgam would be most useful, the time required for preparing the cavity cannot be curtailed, but must necessarily be extended.

From the preceding facts and reasonings, it is hoped and believed that the correctness of the following deductions will be readily admitted. First, that gold foil, from its purity, durability and color, whenever it can be used, is the best material yet discovered as fillings for defective teeth. Secondly, that the amalgam, or combination of silver and quicksilver, unquestionably ranks next. That it surpasses gold or anything else in the tenacity with which it adheres to and remains in a cavity. Thirdly, that it requires far less pressure to fill with it than any other durable material. Fourthly, that it becomes quite as hard and is equally as durable as gold, and, as far as the time it has been in use will justify an opinion, that it is likely to prove quite as effectual in preventing the further progress of decay. Fifthly, that it is applicable to a large class of cases for which, before its discovery, little or nothing was or could be done. Sixthly, that as regards the health, it is as safe as gold or any other material. And seventhly, that in point of color and the readiness with which it discolors, it is very much inferior to gold.

Tin foil must be classed after amalgam, for although in color the tin has the advantage, as well as that when it discolors it is not so objectionable to the eye, still, in all other points, and there are several, it is very far inferior to the amalgam.

In conclusion, let it be borne in mind, that the foregoing remarks and cases are placed before the profession, not so much from a confidence in their intrinsic value, as with the hope that they will elicit further investigation and discussion, which, it will be readily admitted, are the main springs to improvement.

ART. VIII.—*The Properties and Effects of Amalgam examined.* By ELEAZAR PARMLY.

CHARLES A. LEE, M. D.—*Dear Sir,*—All subjects appertaining to the healing art, must of necessity be matter of interest to every member of the profession, and cannot, therefore, be out of place in the pages of a Journal devoted to the advancement of medicine and its collateral sciences. Although the operations of the Dentist are not always studied, nor perhaps understood, by those who are not practically engaged in them, yet they are either directly or remotely connected in innumerable

instances with disorders implicating the system at large, and from so doing come under the observation of almost every practising physician in the country. The benefit of dental surgery, skilfully applied, needs no confirmation; but the hurtful results of injudicious treatment, both as affecting the soundness of the teeth, and their appendages, and as influencing the general health, would seem to demand the strictest scrutiny.

Fully impressed with the importance of these points, and having heard from Dr. Bemis that you felt a sufficient degree of interest to make inquiries of him in relation to Mr. Ames' case, which has such a strong bearing on the following subject, I now address you on topics involving the qualities and effects of mercurial paste, when employed as a stopping for decayed teeth; and adding such corroborative testimony of its destructive tendencies as will not only carry conviction, I trust, to your mind, but also to the minds of your readers, and all who may be interested in the inquiry.

As there are but few in the middle or higher walks of society in this country, who do not, sooner or later, require the services of the dentist, it will be a matter of importance to them, to learn from their medical advisers, what will affect the soundness of organs, so essential and important as the teeth, to the ordinary purposes of life, and so productive of pain and discomfort when maltreated, or in a disordered state, and by what means they are most likely to be benefitted when applying for relief.

It has been alleged that the reason why some dentists do not approve of amalgam pastes, is, that "they are not medically educated." The reverse is the fact—it is because they are well educated, and understand thoroughly its effects, that they repudiate amalgam, in all shapes, as a stopping for decayed teeth. It was from the tests that experience, and the thorough investigations of men most carefully educated, and those most highly distinguished for scientific attainments, both in the medical and dental profession, that I was at an early period strengthened and confirmed in my convictions of its total unfitness for the purposes for which it was used; and my subsequent acquaintance with its baneful effects, not only upon the teeth but upon the general health, has led me to the decided conclusion that it should never be used or countenanced in any case; in fact, I do not understand how any one, knowing its harsh, irritating, and destructive effects to the health, structure, and vitality of the teeth, can use or recommend it to be used. Its effects upon the general health can be easily imagined from its having the power of producing, in some constitutions, salivation, and of so vitiating the secretions of the mouth as to make them capable of changing the color of gold stoppings, and destroying the elasticity and texture of gold plates and springs, worn in the mouth for dental and other purposes.

In proof of the correctness of the above belief and assertions, I will adduce the testimony of those who stand high as medical practitioners, as well as the testimony of those who have been medically educated, and who are not surpassed in this or any other country in practical skill and scientific knowledge in the dental profession—men who have too high a sense of the justice due their patrons, to neglect any means of doing them good; and whose time and services are too highly estimated, to justify their devoting hours, and days, of intense labor, to accomplish what a few minutes would do, if amalgam is what its advo-

cates represent it to be.* And unless the mere holding of certificates or diplomas, of medical honors, has the power of changing the qualities of mercury and silver, which the science of chemistry has not yet been able to do, amalgam will be the same in the hands of a Rush or a Wistar that it was in the hands of a Crawcour or Mallan.

I have seen as good stoppings from these last named persons as I ever have from those now using it in this city; some of whom not only denounced the Crawcours as swindlers and impostors, but contributed largely in money to assist in driving them from the country, after Dr. James R. Chilton, that able and accurate chemist, had discovered, by analysis, that the celebrated Royal Mineral Succedaneum was nothing more nor less than a mixture of quicksilver and silver.†

Of the hundreds of teeth that have been filled with amalgam, and subsequently come under my observation, I have not yet seen one that did not bear marks of reproach to the practitioner who performed the operation, and clearly demonstrate, that professional skill, professional knowledge, and common honesty, were wanting in the operator, to an equal degree that one or the other of these three qualities were wanting in the Crawcours, who mixed the ingredients as well, and used them quite as successfully.

In commencing corroborative testimony in this matter, I shall, (having obtained ample permission so to do,) introduce some remarks from the investigations of Prof. A. Westcott, M. D., an able physiologist and pertinent writer on dental pathology and practical dentistry.

"From the mercury of this compound (amalgam) when oxydized or corroded, as *it always is* by the fluids of the mouth,‡ there is formed a substance closely allied to *calomel;* indeed, judging from its effects, we might say it more clearly resembled corrosive sublimate, which is but another compound of mercury."

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* To show the time required to perform operations when this pernicious compound is used, I will let Mons. Mallan speak for himself. "I can fill a tooth in a few seconds, sir, without giving the least pain. I filled thirteen teeth yesterday for a young gentleman of this city, a solicitor in chancery—a very liberal young gentleman. We can put in this composition of ours in less than no time. I filled these thirteen teeth yesterday in less than five minutes." This operation of five minutes, for which this 'liberal young gentleman' was charged and paid *sixty-five dollars*, would have occupied one of our best practitioners in dental surgery, probably more hours than there were stoppings; hence the advantage gained in time and money by quackery and empiricism, to the prejudice of the public, and disgrace of the profession. You will, therefore, at once perceive, that if it were consistent with correct professional practice, with truth, and with honesty, to use amalgam, no dentist would forego the advantage to be derived from it; and although all might not have the *knack* of getting sixty-five dollars for every five minutes labor, yet they might with ease make ten times as much by filling teeth with amalgam, as they could do with gold, at the same prices.

† Besides affidavits and charges preferred against the Crawcours, in the hands of the police, for malpractice and imposture, in using mercurial paste for filling teeth, the following is one of the certificates published against them in this city, in a printed circular, signed 'H. Villers, M. D.'

"A lady in Belfast had her teeth filled with their "Royal Mineral Succedaneum," which is notoriously a poisonous amalgam of mercury. The next morning, while at breakfast, the filling came out, and was swallowed by her; being informed by her friends of the deleterious nature of the 'Succedaneum,' she in great alarm sent immediately for her physician, who assured her that had she not promptly been relieved from the effects of this dangerous preparation, her life would in all probability have fallen a sacrifice to the culpable ignorance of a quack."

‡ See Dr. Chilton's letter at the close of this article.

The above facts will give an easy solution to the phenomena described in the following letter from Dr. J. Stearns, dated

"Pompey, Dec. 15th, 1842.

Dear Sir,—Regarding as I do the profession of dentistry as a science which ought to be ranked among the honorable professions, I therefore feel it my duty for the public good, and the honor of your laudable profession, to expose the vile quackery that is being practised on the community in this section, by an itinerant dentist, to the great injury of many individuals, and the success of the practice of dentistry. I will here give a statement of a case which has fallen under my observation. Miss R. S. called me to visit her. I found her with febrile symptoms; her tongue, gums, and glands swollen; a free discharge of saliva, a fetid breath, etc. I asked her if she had ever been salivated. She said never. I was positive, however, that she was under the influence of mercury, and then found that two or three weeks before, she had had several teeth filled with "Royal Mineral Succedaneum"—the teeth were very loose. The next day I removed one of the teeth, found it perfectly dead, and the alveolar process affected, which I have since removed, including almost the entire socket of the tooth.

"I have since been called to a Mrs. W., who has since been severely salivated by the use of the same compound.

"Respectfully, yours,

"JEHIEL STEARNS."

"A. Westcott, M. D."

Although the effect of the application of amalgam is not always the same as described in the foregoing letter, yet this compound has uniformly the effect of vitiating the secretions of the mouth, more or less; but its influence in producing *salivation* in the ordinary sense of the word is regulated by the following circumstances.

1st. The susceptibility of the individual to the effects of mercury, it being well known that while some are not, others are, badly salivated by comparatively a trivial amount.

2d. The quantity of the cement used.

3d. The age and health of the subject.

Though the effect just noticed (the vitiating of the secretions of the mouth) is sufficient, independent of other considerations, to condemn its use, there are others of equal weight, equally susceptible of demonstration.

1st. It is uniformly and necessarily inefficient in arresting caries.

2d. It is in every case dangerous.

3d. It is never called for.

I. *Its inefficiency:* It being admitted that dental caries are chiefly if not wholly owing to the chemical action of the acrid fluids upon the calcerous portion of the tooth, the only object gained by *any* filling is the protection of the exposed bone from such attack. It follows, therefore, that any attempt failing to accomplish this must be futile. This is not attained by *amalgam fillings.* That this is the case, will appear from the following facts: 1st. When the plug is removed, it appears in all cases much more thoroughly oxydized on its posterior than its anterior surface. 2d. In all cases where the filling remains any considerable length of time, that part of the tooth behind it becomes soft, the earthy

matter being absorbed; to put this assertion to the test, institute the following experiments.

After preparing a quantity of the amalgam very carefully, fill with it a strong glass tube, making it as compact as possible; having suffered it to congeal undisturbed, immerse it in a tincture of red sanders. In a short time you will find the colored fluid has penetrated entirely around it, absolutely hiding the cement from view. Again: Immerse a tooth containing a medium sized filling of the amalgam, in the same fluid, allow it to remain some time, break it open, and observe the result. If *further proof* of the shrinking nature of amalgam and its consequent inefficien y for stoppings were wanted, it will be evident when we consider its specific gravity.

II. *It is in every case dangerous:* In order to substantiate this position, if it can be shown that a single case of salivation has occurred from its use, the point is gained. This conclusion rests upon the fact that no man, however skilful, can judge *a priori* either of the natural or acquired susceptibility of an individual, in respect to the effect of mercury upon the system, and the consequent risk that is incurred in placing this amalgam in the mouth. But instead of simply *one* case, we have ample testimony to prove that salivation is a very common result; and moreover, that the vitiation of the secretions of the mouth, is a universal one; the culpableness, therefore, of this practice, stands out in bold relief.

Next, let us lay aside, for a moment, the evidence founded on an observation of the *result* of the *application*, and examine the *properties* of this paste, to see whether, by such examination, we should be led to anticipate what observation has shown to be true. To establish this, it is only necessary to show:

1st. That the mercury of the amalgam would, when so applied, become oxydized.

2d. That the amount of oxyde formed would, either as oxyde or as salts, by combination with the various acids with which it is liable to be brought in contact in the mouth or stomach, produce salivation.

1st. Under what circumstances is mercury oxydized?

"Mercury is oxydized by agitation in a bottle half filled with air, and is converted into a black powder."

Now it is clear, that any metal which would be thus affected by simple contact of air, would be far more liable to oxydization in the mouth. For example, tin and silver will retain a polish when exposed to air and moisture; but either of them is very soon corroded in the mouth; but in addition to this, the susceptibility of the mercury contained in the amalgam to oxydize, is enhanced by its union with silver as an amalgam, as the following testimony from Dr. Turner tends to prove.

"The tendency of metals to unite with oxygen is considerably augmented by being alloyed. This effect is particularly conspicuous when dense metals are liquified by combination with quicksilver. Lead and tin, for instance, when united with mercury, are soon oxydized by exposure to the atmosphere; and even gold and silver combine with oxygen, when the amalgams of these metals are agitated with air! the oxydability of one metal in an alloy, appears, in some instances, to be increased in consequence of galvanic action. Thus Mr. Faraday observes, that an alloy of steel with one-hundredth of its weight of platinum, was dissolved with effervescence in diluted sulphuric acid, which

was so weak that it scarcely acted on common steel; an effect which he ascribed to the steel in the alloy being rendered positive by the presence of the platinum."

If a similar galvanic action results from the union of silver and mercury in mineral paste, the mercury would of course bear the relation to the silver, as did the steel to the platinum, in the case cited by Mr. Faraday. These two metals, together with the fluids of the mouth, would constitute all the essentials to a galvanic pile. If we add to these considerations the fact, that while "the current formed by the contact of two metals, gives increased effect to the affinity of one of them for some element of the solution, the ability of the other metal to undergo the same change is proportionably diminished," we have at once a clear idea of the changes which occur, and the successive steps in the process. By the galvanic agency exerted between these two metals by the fluids of the mouth, the natural affinity of the amalgam for oxygen is so increased as to make the decomposition comparatively rapid. But the most important conclusion which may be drawn from these premises, is the obvious fact, that the mercury (the most oxydable metal) would undergo much the most important, if not the entire change. For "when plates of zinc and copper touch each other in dilute acid, the zinc oxydizes more, and the copper less rapidly than without the contact." On the same principle precisely, is the silver of this compound protected at the expense of the mercury. It follows hence, that while the presence of the silver greatly facilitates the oxydation of the mercury, the latter metal is principally acted upon, and the result must be a copious formation of a copious mercurial oxyde, corresponding to the amount shown by observation to be formed.

The only remaining question is as to whether the amount thus formed, is capable of affecting the system so as to produce salivation. Of this, after presenting the following facts and quotations from the "London Lancet" and the British & Foreign Medical Review, I will leave all to judge, who will lay aside prejudice.

"Very lately, a man who was taking sulphuric acid for epistaxis, was severely salivated by two grains of calomel, in a dose of cathartic pills. The acids naturally contained in the stomach were the muriatic and acetic, and the mercury contained in two grains of calomel, or a few grains of blue pill, would of course be sufficient to produce the most serious consequences, if changed into the bi-chloride, or corrosive sublimate."—*Dr. Snow.*

The following is the opinion of Mr. Streeter:

"The fact of the action of the blue pill being much more powerful at one time than another, might be accounted for by the conserve of roses, with which the mercury was triturated, being occasionally mixed with sulphuric acid, for the purpose of restoring its lost color. Hence, instead of the simple oxyd, the sulphate of mercury was producing its effects on the patient. He had no doubt, however, that some constitutions were susceptible of the influence of mercury in its slightest forms. He had seen severe salivation produced by the administration of nine grains of blue pill, although it had been given in only one grain doses *three times* a day, and its effects watched with the greatest care."

The following opinion of Dr. Law corroborates the above.

"We directed one grain of calomel to be mixed up with a sufficient quantity of the extract of gentian, to make a mass to be divided into

twelve pills, one of which was to be taken every hour. We found, in some cases, salivation to be produced by twenty-four of these pills, or two grains of calomel, and seldom were forty-eight pills or four grains required to produce this effect. * * * * We exhibited the blue pill in the same way, and found the mouth to become sore from six grains. * * We have found one drachm in every night sufficient to produce salivation"

Nothing, therefore, can be more clear, than that a small quantity of mercury is capable of producing salivation—much less (as will presently appear), than is usually contained in a *single* cement filling. "I have one of these fillings in my possession which weighs sixty-three grains." This amount of amalgam would be sufficient to produce, from the mercury it contains, thirty-seven grains of calomel, and about thirty-eight and one half grains of corrosive sublimate. On the supposition that the whole of this was administered as calomel in the way described above, it would be more than sufficient to salivate eighteen persons.

From the above facts and considerations we make the following conclusions.

1st. That any person wearing in the teeth any considerable quantity of cement is *liable* to salivation from the accumulation of the oxyd shown above to take place.

2d. That every person (having such fillings) is subject to so much of the *constant* effects as would accrue from all the oxyd formed on the outer surface of these fillings, and which would be easily carried into the stomach.

3d. The like persons whose saliva is generally more or less acid, would be subject to the constant impressions from the entire oxyd formed on the whole surface. In either of the last two cases, the effect would be sufficient to keep up an unhealthy action of the secretions of the mouth, if it did not amount to salivation.

4th. The constant oxydation and solution of the surfaces of these fillings, renders them less and less perfect in respect to preserving the tooth, by giving more free access to those fluids which are the chief sources of decay.

III. The third position we took in relation to this amalgam was, that *Its use was never called for.*

This position rests mainly on the first and second; although were either or both of them refuted, it could still be easily supported.

So much for the testimony of Professor Westcott in this matter, which of itself is sufficient to consign the amalgam to perdition. I will now proceed and furnish additional testimony, conveyed in facts, and the opinions of eminent medical practitioners and dentists; and as it is a common practice, with some gentlemen in the medical as well as other professions, wholly ignorant of the nature and results of amalgam, to give their names to dentists who make a practice of using it, recommending them to public favor; it is to be hoped that the following cases, coupled as they are with testimony from men of the highest character in the medical and dental professions; containing incontrovertible proofs of the evils which may follow the employment of such persons, (who are frequently applied to through the instrumentality of the testimonials above referred to,) will have a beneficial influence in causing such recommendation to be withheld in future, and also in warning the community at large, to beware of that artifice and dishonor

which, for the sake of a few dollars, would sacrifice the health, comfort and happiness of their fellow beings.

The following case, recorded by J. H. Foster, M. D., Dentist, and confirmed by Joseph Wooster, M. D., Physician, both of this city, and both well known as distinguished men in their respective departments of practice, will show the effects of amalgam conclusively, in producing salivation and other aggravated evils.

"On the twentieth day of July, 1843, I was called to visit a lady who was suffering from a tooth filled with the mineral amalgam. For a week succeeding the operation the patient suffered the most acute agony, passing sleepless nights, and obtaining only occasional relief by the use of opiates. On examination, I found the periosteum of the inferior maxillary bone much inflamed, the adjacent soft parts tumefied, very hard and acutely sensitive to the touch, the interior of the mouth was in an equally-inflamed state, and the patient had been for several days, and still was, severely salivated. With some difficulty I succeeded in extracting the tooth—the second molaris.

"Dr. Wooster informed me that this lady had previously enjoyed good health, and that he had not administered any mercurial medicines.

"I could cite many other cases which have come under my observation, in which this article, called by as many assumed names as there are operators who use it, has been productive of serious injury; one such case, however, is sufficient to convince any one who may witness it, of what I have been compelled to believe and have asserted.

"JOSEPH H. FOSTER, M. D."

"I hereby certify, that the facts as stated by Dr. Foster, in relation to the above case, are correct; that I was the constant medical attendant of the lady referred to, and know her to have been a comparatively-strong and healthy person previous to this event; that I had no necessity for, and had not administered any mercurial medicine previous to the extraction of the tooth; that on my first visit after the operation of Mons. Mallan, I found her glandular system had been so affected as to cause active mercurial salivation. I continued my attendance upon her for four months afterwards, during the whole of which time she was unable to attend to her family duties. The swelling of the face could not be reduced by any remedies, and continued the cause of so much acute suffering, that a fever ensued, and very active treatment was resorted to at one period to prevent a threatened inflammation of the brain. Exfoliation of the interior maxillary bone I was constantly apprehensive of, until I became convinced that the case had assumed the form of osteo sarcoma. At the end of four months, when this lady left me to go to the south, her face had not resumed its proportions, nor could I perceive any approximation to a change, and her pain still continued.

"I have no doubt that all her sufferings are justly attributable to the mineral amalgam so much used in filling teeth, and which, I am convinced, is not only an improper, but a highly dangerous compound.

"JOSEPH WOOSTER, M. D."

In the following letter, which I received from Dr. Davis, well known to the medical profession as a gentleman of high character and scientific attainments, he has very accurately described in his own case that

which happens to almost every one who has teeth filled with amalgam under similar circumstances.

"Dr. Parmly,—Dear Sir,—Agreeably to your request, I send you the following account of the effects of an amalgam, or mineral paste, or lithodeon, as it has been variously termed, on one of my own teeth. Some four years ago I called on a dentist to fill two molar teeth in the upper jaw, one on either side. The state of disease and the size of the cavity in each was very similar. The first was filled with gold foil in the usual manner, as I expected both would be. But before I was aware of the fact, the second tooth was filled with amalgam. Not wishing to find fault, I suffered it to remain, and treated it subsequently in every respect like the other tooth. In a few weeks the tooth filled with amalgam began to be slightly tender, the gum around it slightly swollen, and disposed to bleed from very slight causes. These symptoms slowly increased, and at the end of three or four months the periosteum around the roots of the tooth became inflamed, and ultimately ulcerated, producing a disagreeable abscess in the gum. In the meantime the original cavity in the tooth continued to enlarge, and consequently before the end of one year the amalgam came out, having become much oxydized and changed to a bluish-black color. The body of the tooth now rapidly crumbled off, but the disease at the roots continued to increase, until, fearing an extension of the disease to the alveolar process of the jaw, I caused them to be removed by extraction; the surface of the diseased roots was very rough, produced by partial absorption. Subsequently the body of the other tooth (the one filled with gold) has broken away, but its roots still remain in the jaw, having never caused either pain or tenderness. Several other cases, equally well marked, have come under my observation; but as no notes were made of them at the time, I cannot now give them in detail. Indeed, I have never examined a tooth which had been filled with amalgam for any considerable length of time, in which the amalgam did not give unequivocal signs of oxydation.

Yours, with great respect,

N. S. DAVIS, late of Binghamton."

"11 University Place, N. York, Sept. 24th, 1847."

Doctor I. T. Curtis, of this city, has furnished me with the following interesting case, wherein the effects of this nostrum were distressingly manifested.

"Some years ago, I extracted twenty-one teeth and roots from the mouth of a young lady, all of which had been entirely ruined by the application of five or six pluggings of the famous "Royal Mineral Succedaneum," for the arrest of decay in its incipient stage. The use of the compound in this case, had made a complete wreck not only of the teeth, but of the parts adjacent; the mouth became fetid, the alveolar process completely destroyed, and the gums reduced to a spongy texture, bleeding profusely upon the least pressure. Originally this lady possessed an *unusually* fine set of teeth, but shortly after the application of the 'Succedaneum,' unequivocal signs of mercury having been introduced into the system made their appearance, and the mouth was gradually reduced to the above miserable condition, ren-

dering it absolutely necessary to have the entire set of teeth extracted, before the fearful ravages caused by this poison could be arrested.

"I. T. CURTIS, M. D."

"I am also acquainted with a case wherein the application of amalgam to one tooth, not only destroyed the tooth so operated on, but brought on a constitutional mercurial fever, accompanied with other symptoms of the presence of mercury; and to such an extent was the constitution of the patient in this case reduced, solely, in my opinion, (and that of other medical gentlemen cognizant of the circumstances,) through the instrumentality of this poison, that a dangerous illness was superinduced. "I. T. C."

"New-York, Oct., 1847."

There are Amalgam Dentists in this city who will, for a few dollars, show any one how to make paste and apply it to the teeth, which any one can do with a few minutes' instruction. When so *perfected*, some of them assume the title of *Doctor*, and with certificates from their renowned teachers, a physician or two, and a minister, travel about the country as dentists from New-York. The effects of the practice, (from a visit to a village near the city, of one of these Lithodeon makers, living in New-York,) are well described in a letter received from a clergyman, residing in the place where this occurred, and who speaks of several cases that came to his knowledge. I will transcribe two of them, and although not required to omit names, (all of which are well known here,) I do so to spare the feelings of persons connected with them, who might prefer not to have them mentioned.

"A few days after, I met Doctor ———, who told me that he had been getting his teeth filled with a paste the dentist used, and that he was afraid there was something wrong about it, as he had been sick ever since. I asked him if it was an amalgam of mercury that the dentist used. He said he could not tell; he had never had occasion for a dentist's services until then, and supposed it was all right, until he began to suffer severely. I replied, that I had been warned while a resident in ———, by my physician, against ever suffering any amalgam to be put into my teeth. We parted. In going home, he told the dentist what I had said, who, in consequence, called upon me. Dr. —— appeared to be a courteous, and well-informed man, and tried hard to convince me that the preparation *he* used was perfectly harmless. * * I remember putting the question to him, whether there was any mercury in the paste? He confessed there was, but perfectly harmless in the way *he* used it. * * The result you will have anticipated. Dr. ——, who was a sufferer from the first, was under the necessity of having the teeth extracted, glad to get off with this loss. He always thought his health to have been for a time impaired in consequence."

Another case related by the same gentleman:—"Miss —— had several teeth filled by this same dentist. Her head and eyes were affected almost immediately after the dentist left her. Fever ensued—and she continued to suffer from February or March until June following when she died. It was the expressed opinion of Dr. ——, to me, at various times, and also to the family, from his own experience, and that of others, who had suffered from the effects of the amalgam, that the

sickness and death of Miss —— was occasioned solely by the poisonous material used in this paste, which had been taken up into the system."

The following letter from J. W. Crane, M. D., is not only valuable in itself, coming as it does from a person of extensive and successful practice, and long experience as a dentist, but from its furnishing the testimony of a gentleman of high reputation as a medical man, and as a chemist and mineralogist.

"New-York, Oct. 1st, 1847.

"Dr. Parmly,—Dear Sir,—I received a letter from Dr. Frey, some months since, concerning the question which you have so long and so ably defended; and without asking his permission, I take the liberty to place it at your disposal. * * Dr. F. is a gentleman of extraordinary educational attainments in chemistry and mineralogy, and is now practically investigating those sciences in the West. Dr. F. is not a dentist, and I therefore consider the document much more valuable, and free from prejudice.

"I have often expressed my opinion in private, and occasionally in public, *against* the use of mercurial cement *in all cases*, and the long controversy on this subject has not caused any change in my opinion. I understand that some of the advocates of cement, think that a medical education would favor the use of this *dental curse*. If any now exist, holding this opinion, let them read their books backwards, until they arrive at the place where they started, for ignorance is preferable to learning badly used. "Respectfully, yours,

"J. W. CRANE, M. D.,

"Dr. E. Parmly." 11, Le Roy Place."

[Copy of Dr. Frey's letter above mentioned.]

"To J. W. Crane, M. D.,—Dear Sir,—I have known a case in which a large cavity in a molar tooth in the upper jaw was filled with cement containing mercury, and in the course of two months the lady lost not only the tooth which was filled, but the tooth on each side, which were quite free from decay, the mischief evidently arising from mercurial disease of the gums, induced by the presence of mercury used in the cement. "Respectfully, yours,

"J. M. FREY, M. D."

The following case of diseased antrum, in which I obtained the examination and advice of one of our most eminent surgeons, was undoubtedly occasioned from the effects of mercurial paste.

A lady called on me, in great distress, from disease in the first right molar tooth of the upper jaw. On examining the mouth, I found the gum around the aforesaid tooth to be of a dark hue, and quite destitute of healthy circulation. The tooth itself was also dark and necrose, and evidently demanding immediate extraction. Before removing the tooth, I passed a probe along the side of the tooth, completely into the cavity of the antrum maxillare. When the tooth was extracted, profuse hemorrhage ensued, and considerable portions of ash-colored bone adhered slightly to the fangs. Six or eight other pieces of bone, about the size of small peas, were afterwards removed from the cavity of the sinus. The cavity was filled with blood, which made its escape through the nostrils, down the throat and out of the mouth of the patient. The

lady informed me that she had often been nearly strangled at night by purulent matter, which made its escape from the antrum, through the nostrils into the fauces, larynx, and trachea. I found so large an opening into the antrum, after removing the diseased tooth and decomposed bone, that I could easily pass my little finger quite up to the sub-orbital parietes of the cavity. This tooth had been filled with a large plug of mercury and silver, which was unquestionably the cause of the deplorable effects above described.

I could furnish many cases of great interest from other distinguished professional gentlemen, but will conclude the testimony under this head, with a statement of the deplorable effects of *paste*, in the case of the lamented N. P. Ames, Esq., which I subjoin in that gentleman's own language, and which I give in preference to abundant proofs of the same purport, with which I have been favored from other authentic sources.

As a report, however, has gone widely abroad, and received great weight and credence, that Dr. Bemis, of Cabotville, (Mass.) was Mr. Ames' attending physician, and that he had expressed opinions adverse to the facts advanced by the deceased, I will take leave to say, that Dr. Bemis was not the attending physician of Mr. Ames at the time his health is alleged to have first suffered from the mercury used in stopping his teeth, nor was he in attendance at the time of Mr. Ames' death. The doctor had no intercourse with the latter at the one period or at the other, and knowing nothing of the circumstances, he could not contravene the statements made by Mr. Ames himself, which I had caused to be published, and which, until he read them in print, was not aware that Mr. Ames had made any such communication, having no recollection of ever hearing from him an account of his illness in Paris, or what he supposed to be the cause of it, or that he had any teeth filled with the material with which they were filled.

The report made by the person employed by some *amalgam dentists* of this city, to call on Dr. Bemis, was entirely opposed to the facts, as delivered to me by that physician in June last; and being desirous of knowing his views more fully, I made Dr. B. a second visit in September: having then a longer conversation with him, he spoke of the statement that had been published as coming from him, and assured me that the publication of it was in no manner authorized, nor was any other from him in reference to the case, (except a letter to Dr. Lee), that all he said to the person who came from New-York, occurred in a general conversation, not knowing or supposing that any use was to be made of it; and furthermore, said his object in writing to Dr. Lee, (supposing the letter would be published), was to put a stop to all further inquiries of him, with which he had been much annoyed.

Mr. Ames was absent one year from his home; on his return he was suffering from paralysis, occasioned, as he and all his friends firmly believed, by the agency of mercury, with a preparation of which his teeth had been filled. Dr. Bemis informed me that he knew nothing of the case, that would either contradict or confirm Mr. Ames's own assertions; and not having been present at the time of his contracting his illness, and knowing nothing of the cause of it; that he had not seen him at all for six or eight months previous to his death; and that the only statement he had made in relation to this matter, was contained in the letter to Dr. Lee above mentioned, of which he handed me a

copy, to prove, as he said, that he had favored neither the one side nor the other of those who took part in the Dental controversy. To show Dr. Bemis's neutrality as to the points in question, I here annex his letter, *verbatim.* I shall also introduce a most interesting letter written by Dr. Booth, an eminent physician, which will be read with interest, in connection with that of Dr. Bemis:

"CABOTVILLE, Mass., June 23, 1847.

"Dr. CHARLES A. LEE, New-York:

"DEAR SIR:—Your letter, (accompanying Journal), requesting the details in the case of the late N. P. Ames, Esq., of this village, were duly received.

"I have had numerous similar inquiries within the last two or three weeks, from members of our profession, and also from dentists; and for reasons, have not answered them.

"Mr. Ames's case was an obscure one—of long standing; and during the last eighteen months of his life, he was not under any active medical treatment, except, perhaps, the last two or three months he was under hydropathic treatment at Brattleboro', Vermont.

"There was no autopsical examination; and, in my opinion, no definite facts can be elucidated in his case, having a *decided bearing* upon the subject of mercurial amalgam. Moreover, I am aware of the repugnance his relatives have to the publicity of his name and case in all the papers of the day.

"Yours, with much respect,

"DAVID BEMIS."

Letter from Dr. Booth, of Springfield, to Dr. Crane, of this city, by whom it was obligingly furnished:

"October 16, 1847.

"DR. CRANE—My Dear Sir: In answer to some inquiries of yours, with regard to the case of the late Mr. Ames, and also my opinion as to the propriety of using amalgam, I subjoin the following remarks.

"Having resided for several years past in Springfield, and having known Mr. A. both before and after his trip to Europe, I can truly say, that he was a man "formed in nature's finest mould." To a superior mind, well trained by judicious culture, was joined in him a character above reproach. An urbanity of manner, such as falls to the lot of few, was his also. But to our subject. While in London, he had some teeth filled with this mercurial paste, and to use an expression of his, "never saw a well day after." What was the cause? Mr. A. supposed that he had swallowed some of this substance. He was a man not likely to be mistaken upon such a point, nor to form an opinion without good and sufficient reason. Then the question arises, could the passing of this substance in small quantities into the stomach, affect the system injuriously? or in other words, could the specific effects of mercury be produced? Undoubtedly they might, although many persons in similar circumstances would escape all harm. The mere fact of many persons suffering no bad effects from this substance, does not prove its harmlessness. By no means. Negative testimony is worth little, compared with positive. The susceptibility of various constitutions to the various preparations of mercury, is as varied almost as the human countenance. Peculiar idiosyncrasies, to which

you have so happily alluded, must modify its action. But Mr. A. was exposed to wet and damp weather, soon after his teeth were filled, and what was the result? Just what we are led to expect, in cases of persons taking cold while under the specific influence of mercury. In such cases, the osseous system of the lower extremities particularly, becomes implicated, producing a condition termed mercurial rheumatism, or mercurial palsy. The patient loses gradually the use of his limbs for the purpose of locomotion, and although he may live several years, yet is in such a state, that death might almost be considered a blessing. A case which occurred under my own observation, and with the circumstances of which I was perfectly familiar, is in point. A young man, while under a mercurial course, went in bathing, and contracted cold. From that day he gradually lost the use of his lower limbs, and although he afterwards lived more than ten years, was never able to do any business for the latter half of this time, dragging out a life rendered a burden to himself and friends. My dear sir, I must say, I consider these two cases very similar, not only in outward appearance, but also in the internal changes, produced, as I think, by the same influence. You will perceive the conclusion to which I have come is this, that while Mr. A. was under the poisonous influence of mercury, he took cold; the result was such as we should be led to expect from similar causes, acting in like manner upon the human system. For seven long years he was a sufferer, till at last his worn and broken constitution found a resting place amid its kindred dust. Here I leave all; and while I ask your indulgence for this hasty manner in which I have treated the subject, believe me,

"Yours, truly,

"ALFRED BOOTH."

To return. I will now make such extracts from Mr. Ames's letters, as will enable medical men to judge whether the effects produced and described by him, are, or are not unequivocal proofs of the presence of mercury in the system; and also whether mercury, when so absorbed, does not occasionally prove a source of most calamitous disease.

"I have been very much troubled with my teeth, and for a few days the same cause has affected my whole system. About the 1st of July I placed myself in the hands of a dentist in London, and had several teeth filled with a new-fashioned mineral paste, that was highly recommended. Several days after, I found a piece of the paste loose in my mouth, and on examination found it to be nearly all quicksilver. I felt no immediate bad effects, but as the wet and cold weather came on, which commenced in August, I was much affected by the cold, and on my arrival here, being quite out of health, was told by my physician that I was thoroughly salivated,* and without any doubt from the ce-

* The public has already been informed by an intimate friend of Mr. Ames, who crossed the Atlantic with him, and saw much of him while in England, that he was in very fine health when they arrived there; and I have, within the past week, received the testimony of an eminent professional gentleman, late a practitioner in Europe, but now in this country, who affirms, that when Mr. Ames's physician in Paris told him that he was "thoroughly salivated," Mr. Ames, with much astonishment, replied, "I have not taken a dose of medicine of any kind in six years."

Dr. Bartlett, of Massachusetts, who was in Paris, and acquainted with Mr. Ames

ment in my teeth. He said he would not pronounce on the case so quick, if I were the first that had come to his knowledge from the same cause, but that I was not. My lower teeth have nearly all become loose, and there is much probability that I shall lose them all before long. I have suffered severely night and day, although able most of the time to travel. I am now in good American hands, and recovering rapidly. What leads me more fully to the belief, that the cause of my situation is mercury, and proceeding from my teeth, is, that one-fourth of what was put into one tooth, and which I took loose from my mouth, was sufficient to quick (whiten) a penny completely. I had then probably swallowed the remainder from that tooth, and from several others." October 10, 1840.

Shortly after writing the above, Mr. Ames being seated in the open air for some time, witnessing an imposing public ceremony, was struck with paralysis, so as to be obliged to be carried home. Feeling anxious, a few months afterwards, to ascertain whether his ailment had implicated his lungs, he had an examination made, which he describes in a letter, dated Feb. 21, 1841.

"Feeling an increased anxiety on my own account, as well as on account of my friends, I concluded to advise with the best physician, conjointly with the one I had been employing. I found *that best* to be Dr. Mott, formerly of New-York, now residing here. He met the other physician, and they both assured me that my lungs were sound, but that I had set out too soon, and in the most unfavorable weather, I feel quite inclined to listen to the particular advice of my physicians with regard to my future course; more especially, for a few weeks longer, they have advised that I should not overdo in the least, not on account of my lungs, but on account of my *glands*, which have all been inflamed and swollen."

As my object, in this case, is solely to show the hurtful effects of this deleterious poison upon the system, further details on this interesting case would be out of place; and I will merely add, that towards the close of the life of this beloved and valuable man, his paralysis became more confirmed, until he eventually wholly lost the use of his lower limbs; and after more than six years of intense suffering, he at length perished—a victim, undoubtedly, to the baneful effects of the mineral employed in the operations to which his teeth had been subjected—mourned over by friends—respected and beloved by all—a loss to science

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at the time of his suffering, without knowing that he had teeth filled with mercury and silver, (of the effects of which Mr. Ames himself probably at that time could not have been aware,) pronounced his illness to be of mercurial origin, as his letter to me, part of which I transcribe, will fully testify.

"New Bedford, Oct. 24, 1847.

"Dear Sir,—I saw much of Mr. Ames while in Paris, but as he was not under my professional care, I took no notes of his case. His disease at that time seemed chiefly confined to the glandular system, and I always suspected it to be of mercurial origin. He dated the origin of his sufferings from the time he was in London, but he never said anything to me about having had his teeth filled with amalgam. It was during the first two or three weeks of his residence in Paris that I knew him; he was better at the time I left, but the period of his greatest sufferings was after that. I have never seen him since except for a few moments one day in Springfield, when I was too much shocked by his hopeless condition, to wish to converse with him upon the subject of his health.

"Very respectfully yours, LYMAN BARTLETT."

and to the nation, whose servant he was, and in whose special mission he was officially engaged when this calamity befel him.

In order to learn the views of others in the profession, I addressed a short circular to the dentists who have gained the highest rank in other cities, for their practical skill and scientific knowledge, most of whom have been medically educated, and are graduates in medicine, I received from them the following answers.

"PHILADELPHIA, Walnut-street, June 8, 1847.

"MY DEAR SIR,—I cheerfully comply with your request, "in as few words as possible," by stating my opinion, that amalgams are *entirely unfit* for stopping or filling teeth. But I am unable to decide whether it be the lack of honesty, or want of knowledge and liberality, which induces a preference with some persons, for such base compositions over gold.

"Very truly and respectfully yours, etc.

"E. B. GARDETTE."

"MONTREAL, June, 1847.

"MY DEAR DOCTOR,—In answer to your note of the 17th I will state briefly, that my experience in the use of amalgam for filling teeth, is such as to warrant me in saying, that it is totally unfit for the purpose under any circumstances, saying nothing of the local or constitutional injuries that this filling is sure to inflict to a greater or less degree; the shrinking of it while hardening is sufficient to render it useless as a material for plugging teeth. This shrinking being in proportion to the size of the filling, in very small cavities, such as the veriest ninny in the profession ought to fill successfully with gold, its effects upon the structure of the teeth are less observable; but in large cavities it freely admits the fluids of the mouth between it and the walls of the cavity, its surface becomes oxydized, and the whole tooth blackened in consequence.* * * * * Though these are the least of the objections that may be brought against this material, they are alone sufficient in my opinion to prohibit its use.

"I am surprised that a set of men, or even one man, can be found, who dare insult an enlightened public by advocating so dangerous a practice; and I cannot help feeling, that he who uses amalgam, even with the approbation of the patient, commits an act in the highest sense dishonest and disgraceful.

"I am, my dear sir, yours, sincerely and truly,

"W. H. ELLIOT."

"Dr. E. PARMLY, Bond-street, New-York."

"BOSTON, June 11, 1847.

"All amalgams, under whatever name, that I have known to be employed for filling teeth, I hold to be injurious in their effects; and though in some instances they remain for a long time, and appear to be harmless, they do, *in all such*, fall short of gold in effecting the preservation of the teeth.

"The operator, who is ignorant at this day of the mischief he may do by using amalgams, is not worthy of being trusted; and the accomplished dentist who has it in his power to do well, and who must and does know as well as you or I do, that gold is in every respect the superior article, and will still use the mercurial compounds instead of it,

does but barter his conscience to cheat his fellow beings out of their teeth, perhaps of their health, and possibly of their life.

"Yours, very truly, J. F. FLAGG."

"Dr. E. Parmly."

"Boston, June 10, 1847.

"Dear Sir,—We answer with pleasure the questions contained in your note of the 7th. First, we have never used amalgams in any form, knowing them to be injurious to the teeth under *any circumstance*. Secondly, we consider it decidedly dishonest for any dentist to use a mercurial composition, saying that it is equal to gold for filling teeth, or that it will preserve them for any great length of time.

"Yours, with much respect,

"J. & E. G. TUCKER."

"Philadelphia, June 11, 1847.

"My Dear Sir,—Yours of 17th instant is before me. As to your first inquiry, I would say, that I have not considered amalgam fit nor safe for stopping teeth, and have never used it.

"I cannot consider any one honest who would use it, and say it was better than gold; if they be honest and use it, they must be grossly ignorant, and consider the community to be so also.

"Very respectfully, yours, LEWIS ROPER."

"Dr. E. Parmly."

"Baltimore, June 11, 1847.

"My Dear Doctor,—In reply to your note of the 8th instant, I beg to state that, during the last ten or twelve years, my opportunities for observing the effects of amalgam have been, I am sorry to say, very frequent, and I have yet to see the first case in which any real benefit has been derived from its use: on the contrary, many cases have fallen under my observation, in which very pernicious effects had resulted from its use. In short, the result of my observations upon the subject is, that it discolors the teeth, *often* destroys their vitality, frequently induces tumefaction and tenderness of the gums, buccal membrane, and alveoli-dental periosteum, vitiating the secretions of the mouth, and sometimes causing salivation.

"In conclusion, I am decidedly of opinion, that any tooth which can be filled with any material and rendered serviceable, may be filled with gold. Entertaining these views, and they are the result of critical and extensive observation, I am constrained to believe that those who use and recommend amalgam, as better than gold for filling teeth, are either deceived themselves with regard to its effects, or wish to deceive their patients.

"Very truly and sincerely yours, C. A. HARRIS."

"Eleazar Parmly, M. D."

"Cazenovia, June 15, 1847.

"Dear Sir,—In reply to yours, I have to say, that I consider amalgams *not only unfit* but *dangerous* for plugging teeth; unfit, because they do not answer the purpose of a proper stopping; inasmuch, as like all other metallic compounds and cements, in passing from a soft to a hard consistence, they necessarily *contract*, leaving a space between the filling and the walls of the tooth, thereby defeating the prime object of a good stopping; to wit, impermeability to fluids, and other modifying influences from without.

"It is unfit, as it easily oxydizes and discolors the teeth; and further, because in skilful hands it is never necessary, gold and tin being infinitely superior. It is dangerous, because it readily unites with acids, with which it may come in contact in the mouth; and may thus generate a poisonous compound, nearly akin to corrosive sublimate, which is constantly being received into the system. It is also dangerous as corrupting the secretions of the mouth, and inducing inflammation of the gums and alveoli, and because its effects can never be fully anticipated, every gradation of effect having been produced, from the most imperceptible, *even to death.*

"In view of these facts, and from my own observation and experience, I cannot but consider those of doubtful morality, who declare that an amalgam of mercury and silver is better than gold for plugging the teeth.

"Very respectfully, yours, etc., WM. H. DWINELLE."

"Baltimore, June 19, 1847.

"Dr. E. Parmly,—Dear Sir,—I have just received your note of the 17th, and in reply I can only say, that I have seen many teeth which had been filled with amalgam, and from my observation of its effects upon the teeth and other parts of the mouth, I do not hesitate to say that I consider it *decidedly pernicious.* Viewing the matter in this light, I cannot regard those who use it, asserting that it is better than gold, as honest or sincere in the declaration they thus make.

"I am, very respectfully, yours, E. NOYES."

Leonard Koecker, M. D., who is well known in this country and in Europe, as being one of the most celebrated dentists in the world, and whose practical skill and scientific knowledge has rarely been equalled in the profession, says, under date, "London, June, 1846," in relation to the use of amalgam, "nothing but the grossest and most culpable ignorance of the true principles of general as well as of dental surgery, can form an excuse for such a practice, by which, in fact, the beautiful remedy of arresting the progress of caries in teeth, for the purpose of stopping or filling them, is perverted into the means of destroying their vitality, and making them the cause of the most dangerous diseases, to which the gums, sockets, maxillary bones and cavities are not only liable, but by which not unfrequently even the most important organs and functions of sight, hearing and smell, are impaired and gradually destroyed, or which may sometimes end in becoming cancerous, and proving fatal. The most distressing neuralgic diseases of the face and head, are also, in most cases, the result of such malpractice."

If you have paid any attention to the late controversy in the public journals, in relation to this matter of amalgam, you have not failed to perceive that the advocates of it have contended strongly that it is only used in cases where gold cannot be—this is not true. One of our best physicians called upon me, and said, that a patient of his was under the influence of mercury, from having had her teeth filled with "paste." On an interview with this lady, I removed amalgam stoppings from eight teeth, all of which have since been successfully filled with gold—a very common case.

I also have testimony to prove, that a ceelbrated user of amalgam, has lately taken the precaution to have it removed from his own teeth, and gold supplied in its place, by one of our best dentists.

Feeling a strong desire to have the question of the fitness of amalgam for stopping teeth forever set at rest, I placed in the hands of Dr. James R. Chilton, well known as the distinguished chemist of this city, several teeth which had been extracted on account of extreme suffering, after being filled with the amalgam; with the request that he would submit them to chemical tests. The following letter from that gentleman contains the result of his investigations, and fully establishes the truth of all I have contended for, as to the effects of amalgam upon the teeth, and proves beyond controversy that amalgam should never be used in the mouth, exposed as it is to the action of agents, producing not only the oxide but sulphuret of mercury, both of which, when taken into the system, produce the specific action of mercury; and small as the quantity may be so produced, whether in the mouth or after the substance had passed into the stomach, it has been clearly proved to be quite sufficient, under peculiar circumstances and in susceptible constitutions, to be the cause of alarming and disastrous consequences; besides, by its deleterious action upon the teeth themselves when largely used, causing their inevitable destruction, by blackening, decomposing, and completely breaking up their entire structure.

"New-York, Nov, 13, 1847.

"E. Parmly, Esq.—Dear Sir,—In accordance with your request, I have made a chemical investigation of the various decayed teeth which you handed me, the cavities of which were more or less filled with the amalgam of silver and mercury. These teeth presented the appearance of having been filled a long time previous to being extracted. The metallic fillings of each was quite black, and in some it was of a porous or spongy texture. Upon breaking open the teeth, and removing the fillings, the cavities, to a considerable depth, were found to be greatly discolored, some being quite black, and in one it was of a dark green color, which extended even to the extremity of its roots.

"From the various experiments which I have made, both upon the external surface of the amalgam found in the cavities of these teeth, and upon the discolored portions of the teeth themselves, I have no doubt that the discoloration has been produced by the decomposition of a portion of the amalgam by the agents with which it has come in contact in the mouth, thereby producing both oxide and sulphuret of mercury, with a portion of sulphuret of silver.

"The tooth, the root of which was colored green, contained oxide of copper, no doubt derived from the amalgam which may have been made by mixing mercury with the filings of ordinary silver coin, which always contains a portion of copper.

"Very respectfully, yours, JAMES R. CHILTON."

In conclusion, permit me to say, that however strongly amalgam may be recommended by some, who, for convenience, use it, regardless of consequences; and by others, because they, from a total want of professional skill and ingenuity can use nothing else, its true character will be found in the foregoing testimony, which truth can neither controvert nor set aside.

I have the honor to be, with high respect,

Your obedient servant,

E. PARMLY.

No. 1 Bond street, November, 1847.

PART SECOND.

Critical Analysis.

ART. IX.—*Chemistry, in its Application to Agriculture and Physiology*, By JUSTUS LIEBIG, M. D., Ph. D., F. R. S., M. R. J. A.—From the fourth London Edition, revised and enlarged. New York: Wiley & Putnam, 1847.

THIS is an octavo volume of 400 pages, on good paper, and fair type; and like most of the writings of the distinguished author, will be read with interest by all who are devoted to the cultivation of the subjects on which it treats. But the only part of the work which more particularly interests the medical reader, is the last chapter, devoted to the consideration of "Poisons, contagions, and miasms;" and hence it is to this alone that we shall confine our attention in the following brief review. "The action of inorganic compounds," says Liebig, "such as acids, alkalies, metallic oxides, and salts, can in most cases be easily explained. They either destroy the continuity of particular organs, or they enter into combination with their substance." Thus the mineral acids, oxalic acid, caustic potash, &c., all produce a direct destruction of the parts to which they are applied, and hence their action is likened to that of mechanical injuries. The action of what the author terms "proper inorganic poisons," such as Arsenious Acid, Bichloride of Mercury, Nitrate of Silver, and Carbonate of Lead, is owing, in most cases, to the formation of a chemical compound by the union of the poison with the constituents of the organ upon which it acts; it is owing to the exercise of a *chemical* affinity more powerful than the vitality of the organ." These substances are represented as combining chiefly with the albuminous and gelatinous tissues, and imparting to them the property of resisting the ordinary influences of decomposition or decay. But the same combination that gives the tissues the power to resist decomposition, also renders them incapable of organic changes or transformations, and hence the rapidly fatal consequences. The purely chemical action of this class of poisons is still more clearly set forth in the following paragraph taken from page 361. "These considerations enable us to fix with tolerable certainty the limit at which the above substances cease to act as poisons. For since their combination with organic matters must be regulated by *chemical* laws, death will inevitably result, when the organ in contact with the poison finds sufficient of it to unite with *atom* for *atom*: whilst if the poison is present in smaller quantity, a part of the organ will retain its vital function." The rea-

son why organic lesions often appear very slight in post-mortem examinations after poisoning with these substances, is because the alterations of structure occasioned by the chemical combination of the poison with the organized tissue, are not visible to the eye. But when the action of the arsenic or other poison is confined to the surface of an organ, as the mucous coat of the stomach, those parts which enter into combination with it are separated in the form of eschars. And hence if death should follow, visible ulcers, corrosions, etc., will be found. The purgative action of neutral salts, such as sulphate of magnesia, sulphate of soda, chloride of iodium, nitrate of potash, etc., Liebig represent as purely physical; and likens it to the action of salt strewed on fresh flesh, from which it extracts sufficient water to immerse itself in the brine. Thus on page 357 he says, "when a solution of a salt, in a certain degree of dilution, is introduced into the stomach, it is absorbed; but a concentrated saline solution, in place of being itself absorbed, extracts water from the organ, and a violent thirst ensues. Some interchange of water and salt takes place in the stomach; the coats of this viscus yield water to the solution, a part of which, having previously become sufficiently diluted, is, on the other hand, absorbed. But the greater part of the concentrated solution of salt remains unabsorbed, and is not removed by the urinary passages; it consequently enters the intestines and intestinal canal, where it causes a dilution of the solid substances deposited there, and acts as a *purgative*." Again, "each of the salts just named possesses the purgative action, which depends on a physical property shared by all of them; . . . . . The *composition* of the salts has *nothing* to do with their purgative action; it being quite a matter of indifference as far as the mere production of this action is concerned, (not as to its intensity,) whether the base be potash or soda, or in many cases lime and magnesia; and whether the acid be phosphoric, sulphuric, nitric, or hydrochloric." The modus operandi of contagions and miasms the author explains on the principle of chemical action or fermentation long since announced by La Place, viz: that "a molecule set in motion by any power can impart its own motion to another molecule with which it may be in contact." The similarity or rather identity of the action of these morbific agents, with chemical fermentation, is very distinctly announced by Liebig in the following quotation from page 368. "The mode of action of a morbid virus exhibits such a strong similarity to the action of *yeast* or liquids containing sugar and gluten, that the two processes have long since been compared to each other, although merely for the purpose of illustration.—But when the phenomena attending the action of each respectively are considered more closely, it will in *reality* be seen that their influence depends on the *same cause*." He divides these agents into two classes, one represented by the action of yeast on sugar by which a change or fermentation is produced without reproducing the yeast; the other by the action of yeast on substances containing gluten by which it is itself reproduced. The first class includes all those deleterious agents arising from vegetable and animal decomposition, which though they induce diseases of greater or less severity, are not themselves generated in the diseased system and are consequently called non-contagious. The second includes those contagions or specific viruses which are capable of being generated or reproduced in the animal system laboring under their influence; and susceptible of indefinite propagation from one in-

dividual to another. Thus we are told on page 378 that, "when a quantity, however small, of contagious matter, that is of the exciting body, is introduced into the blood of a healthy individual, it will be again generated in the blood, just as yeast is reproduced from wort." Again; on page 382 the author says that, "if the manner in which the precipitated *yeast* of Bavarian beer acts be called to mind, the modus operandi of vaccine lymph can scarcely be matter of doubt. Both the kind of yeast here referred to and the ordinary ferment are formed from gluten just as the vaccine virus and the matter of smallpox are produced from the blood. Ordinary yeast and the virus of human smallpox, however, effect a violent tumultuous transformation, the former in vegetable juices and the latter in blood, in both of which fluids respectively their constituents are contained, and they are reproduced from these fluids with all their characteristic properties. The precipitated yeast of Bavarian beer, on the other hand, acts entirely on the sugar of the fermenting liquid, and occasions a very protracted decomposition of it, in which the gluten, which is also present, takes no part. But the air exercises an influence upon the latter substance, and causes it to assume a new form and nature, in consequence of which this kind of yeast is also reproduced. The action of the virusof the cow-pox is analagous to that of the low yeast; it communicates its own state of decomposition to a matter in the blood, and from a second matter is itself regenerated, but by a totally different mode of decomposition; the product possesses the mild form, and all the properties of lymph of cow-pox." The foregoing extracts are sufficient to give the reader a very distinct view of the author's mode of explaining the modus operandi of poisons, etc. And every one at all versed in the history of medicine will recognise it as a revival of a very old medical theory, now again put forth in the author's own peculiarly bold and ingenious style. A style indeed, which from its very boldness, has probably captivated more minds, and led to the adoption of more errors than that of any other writer of the present day. But Liebig's theory of the action of poisons, is not only wanting in originality, but equally so in proof. Thus it may be that arsenious acid, enters into chemical combination with the living organized tissues, and by such combination destroys their vitality; or it may destroy their vitality by some other mode, and enter into combination with the gelatinous portion of the organs afterward. Where is the proof? So the action of vaccine virus may be analogous to the workings of yeast from Bavarian beer; and all the ancient doctrines of fermentation may be true; but we look in vain for anything beside the author's assertions to prove them so. Hence every reader should hesitate and examine for himself before placing too much reliance on his conclusions, however plausibly set forth. It was not our intention in the present article to examine the subject critically, but simply to give a fair view of the author's opinions, and leave their truth or falsity to be canvassed hereafter.

N. S. D-

ART. X.—*A System of Surgery.* By J. MCCHELIUS, Doctor in Medicine and Surgery, Public Professor of General and Opthalmic Clinic in the University of Heidelberg, etc. etc. etc. Translated from the German, and accompanied with additional Notes and Observations, by JOHN F. SOUTH, Late Prof. of Surgery to the Royal College of Surgeons, of England, and one of the Surgeons to St. Thomas's Hospital. In three volumes, pp. 640, 586, 942; Philadelphia: Lea & Blanchard.

WE here have the completion of the great work of Chelius, the first number of which we noticed in our sixth volume, p. 116. We then expressed a high opinion of the merits of the portion submitted to our examination; and now that we have an opportunity of going through the entire work, we find our favorable impressions not only confirmed, but strengthened. It has already passed through six editions in Germany, and been adopted as a Text Book in the principal medical schools of that country; and in addition to this, it has been translated into seven different languages of Europe, and been universally recognised as standard authority on all matters relating to surgical science. The value of the work, however, is greatly enhanced by the annotations and comments of the English and American editors; although the modesty of the latter has prevented the insertion of his name on the title page altogether, we know not where we shall find a more complete and thoroughly elaborate digest of Surgery, in any language, than is to found in this excellent work. In character it differs essentially from the equally voluminous work of Velpeau; and, without instituting a rigid comparison between their respective merits, we may say that it will be found not less useful and satisfactory than the treatise of the great French surgeon. We trust that the spirit and enterprise of the worthy publishers, in presenting to the American profession such invaluable publications as this, may be richly rewarded, and that they will be amply encouraged in their laudable career of enriching our libraries with the choicest productions of foreign medical press.

One striking excellence of this work is the complete account it contains of British surgery, its principles and its practice, as exhibited in the writings of its illustrious masters, the Coopers, the Bells, the Hunters, Pott, Lawrence, Brodie, Abernethy, Liston, Cusack, Syme, Wardrop, Hay, Hennen, Guthrie, Travers, Earle, Green, Howship, Tyrrel, Mayo, and others. It is, in fact, a complete encyclopedia of surgical science, containing the views of all the principal living and dead surgeons, of all countries, and all times; and the practitioner will rarely fail in finding on its pages whatever he may seek relating to this important branch of the healing art. It forms, indeed, a very complete surgical library in itself, and we should scarcely wish to be better armed for the practice of the art, than to have its contents snugly stowed away in our memory, and the book itself within our reach, wherewith to refresh it, as occasion required. The work, however must be studied to be properly appreciated; any brief notice, like this, such as our limits allow, can give but a very faint idea of its merits. Under each article or subject treated of, is a complete bibliography, which will enable the reader to consult any other works relating to the same topic. The American editor has made many judicious additions; and the style in

which the work is got up, icluding typography, paper, and binding, does great credit to a house whose issues have no superiors in these respects in this country.

ART. XI.—*Observations on the Poisonous Properties of the Sulphate of Quinine.* By WILLIAM D. BALDWIN, M. D., of Montgomery, Ala. 8vo., pp. 22. 1847.

THIS is a reprint of an excellent article from the Am. Jour. of Med. Sci., April, 1847. Dr. B. has investigated with much care the effects of Quinine upon the animal economy, and his conclusions are similar to those which we have long since adopted. We quote in the first place its toxicological effects, as observed in numerous experiments upon *dogs.*

"*Symptoms* which followed the ingestion of large doses of quinine into the stomachs of dogs:—*restlessness* generally preceded all other symptoms, as was indicated by the animal changing its position often, and constantly moving from place to place. *Vomiting*, or, in those cases where the esophagus was tied, efforts to vomit succeeded. *Purging* was noticed occasionally, but in no instance except where the medicine was taken by the stomach. Then came on *muscular agitation* or *tremulous movements* of the body and extremities, with a *constant motion of the head*, resembling somewhat *paralysis agitans.* In attempting to walk, the dog would totter from side to side and fall, or if he maintained his feet, would walk in a direction different from the one which he seemed to desire. When under the full operation of the poison, the power of locomotion, or even the power of standing in the erect position, was lost altogether, the extremities apparently *completely paralyzed.* This state was accompanied with more or less *excitement of the vascular system;* the pulse increasing in frequency, and rising from 110 to 160, and in one instance even as high as 240 per minute. *Great oppression of the breathing* was present and sometimes *frothing at the mouth.* The *dyspnœa* in all instances was excessive, sometimes panting, at others *slow* and *labored*, resembling in a most striking manner an acute attack of asthma; countenance expressive of great distress and anxiety. The *pupils of the eyes were invariably dilated*, and generally to an enormous extent, leaving but a small ring of the iris perceptible, and *vision*, as well as could be judged, *was entirely lost. Convulsions* were observed in every case (except one), which was watched to its termination, where the dose given was sufficient to produce death, and in one or two instances where the medicine failed to produce this result. *Furious delirium* was present in one case, as was manifested by the dog barking and biting at everything about him. Sometimes a *profound coma* would ensue, accompanied with slight *muscular agitation*, *slow* and *heavy breathing*, terminating in death in a very few minutes after the poison had been taken, and in a few instances the subject seemed as if stunned by some sudden and powerful blow and violent fit of apoplexy. This latter effect, however, was only observed when it was given to young dogs (half grown and under) through the jugular vein or peritoneum. Its effects upon puppies seemed to be *proportionately* much greater than upon dogs fully grown.

"The time required to produce death varied very greatly with the quantity given and the age of the subject, as well as the mode and manner of its administration, and in some instances it varied considerably when the dose, mode, and all other circumstances of its administration were supposed to be equal; for whilst in some instances fifteen or twenty grains produced the uniform and peculiar train of toxical symptoms, succeeded by death in a very short time; in other instances it required these quantities doubled

and repeated until 120 grains had been taken, and a much longer time to produce the same results. This fact is in accordance with my experience relative to its medical action upon the human subject, showing that it is governed more, perhaps, in its modus operandi by inherent idiosyncrasies, or created predispositions, than any other remedy. The modes of giving it adopted were by the stomach, the cavity of the abdomen, and by the jugular vein. When given by the stomach it produced vomiting, and was thrown back generally before a sufficient amount to produce death could be absorbed. By dissolving and largely diluting it with water, a sufficient quantity was absorbed to produce death, in this manner, in one instance. In almost all of the experiments with it by the stomach, however, the œsophagus was ligatured. When dissolved and given by the *stomach* its first effects were observable in about twenty minutes, sometimes shorter or longer, and death resulted in from one to thirty-six hours, usually in four or six. An empty stomach facilitated its operation greatly. When injected into the *peritoneum* in full doses [40 grs.] its effects were appreciable in from four to six minutes, and death occurred in from thirteen to thirty minutes. When injected into the *jugular vein* (in giving it by this mode great care was taken to prevent the admission of air), its first effects were manifest in a space of time so short as to be almost inappreciable; not more than a few seconds after the nozzle of the syringe was withdrawn, and death occurred in one or two minutes. In all instances, except one, the quinine was dissolved in water by the addition of sulphuric or other acid in quantities barely sufficient for this purpose.*

"When the experiments went far enough to produce amaurosis, short of death, the vision was regained after a time. In one instance the dog remained *totally blind* for two weeks, and afterwards regained his vision slowly. This is also a feature in the second case reported in the commencement of this article. The man regained a very useful degree of vision after a short time. From these, as well as other cases of the kind reported, it would seem that amaurosis from this cause is not likely to be permanent.

"Though it operated much more promptly when injected into a vein or the peritoneum, yet I did not observe that it operated with more power or force: that is, I did not discover that a given quantity administered in this way would produce death more certainly than when given on an *empty* stomach. 28 grains injected into the cavity of the abdomen in one instance, and 20 grains injected into the jugular vein in another, failed to produce death; yet these quantities *did* produce death in other instances, as well when given by the *stomach, as by these modes.*

"*The post-mortem appearances* were equally uniform with the symptoms before death. The most prominent and characteristic appearances were the *dark, fluid* and *defibrinated* condition of the *blood* and the *congested* state of the parenchyma of the *lungs*, resembling very much *red hepatization.* The vessels of the membranes of the brain were engorged, so also were the liver and kidneys in a few instances. The stomach and bowels were vascular and highly injected in patches. The membranes of the spinal cord were more or less vascular, and, in one instance, a semi-fluid coagulum of blood was found in the upper half of the theca vertabralis. This was probably owing to the subject being very young, and the convulsions being much more violent and frequent than in any other instance.

"Thus it seems clear that quinine is a *poison*, and one which may be made *directly fatal to life*; and if these experiments upon the dog, *in themselves* are not conclusive of that fact, which the concurrent testimony of toxicolo-

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* "In one instance where it was made into a bolus and enveloped in a slice of bacon and introduced into the stomach, vomiting occurred in twenty minutes, and a large portion of the medicine returned. Except that it did not produce death, its effects did not differ in this from those observed in other instances where it was dissolved and given by the stomach."

gists would justify us in believing, they at least become so when it is remembered that the symptoms which its exhibition gave rise to, are not only strongly corroborated by, but were almost identically the same with those observed in the human subject, in the few instances where poisoning from this substance is known to have been produced. There is not a symptom noticed in these experiments which has not, at one time or other, been observed in its operation upon the human subject, and the two cases of poisoning in the human subject reported in the commencement of this article, where the striking and peculiar assemblage of symptoms which followed its administration was so completely identical with those observed in the dog, most clearly establish the fact that the manifestations of its *poisonous operation*, at least upon the dog, are identical with those observed in the human subject, or at any rate do not differ more than they do in different instances on 'man and man.'

"Its operation as a poison, as well as a remedy, is certainly peculiar, and it seems difficult to assign it to any particular class of poisons, differing in some respects from all of them. It appears to resemble in its action, more closely than any other, those of the '*second class*' of Orfila, or the class of 'narcotic poisons.' It does not seem to possess any hypnotic properties; in this it differs from most of the substances included under this head. I do not mean to touch the much agitated question of the mode of its remedial operation, but desire to speak of its poisonous action only; and on this head will only add farther, that its operation seems to be principally upon the nervous system, as is clearly demonstrated in the derangement of the senses of vision and hearing, and respiratory functions, as also in the general muscular agitation, convulsions, etc. As it has been detected in the urine, there can be no doubt but that it enters and mixes with the circulating masses of the body, and through this means exerts a *direct* influence upon the nervous system, which, as we have seen, is *eminently* excitant when given in quantities calculated to destroy life."

These experiments certainly prove the poisonous action of this drug when given in large doses, and should teach us caution in giving it in mammoth doses, as is too often unnecessarily practised. With respect to an *antidote*, Dr. B. thus remarks:—

"As yet I am aware of no *antidote* which will with any certainty, negative the injurious effects of quinine. I have given the sulphate of morphine to patients rendered very restless and uncomfortable from a high state of *quininism* having been induced, but cannot speak with any confidence as to its effects. I have not known it to produce an immediate alteration in the state of the patient's feelings, but have witnessed an improvement in the course of a few hours, and in no case do I remember to have seen the patient get worse under such circumstances; but how far this may have been dependent upon the suspension, or partial withdrawal of the quinine [which generally takes place under such circumstances,] and how far upon the morphine, it is difficult to say. This, however, at best can only be a partial antidote, palliating the effects of the poison, and of course can in no wise alter its medicinal, poisonous or chemical qualities or constitution. And, did we possess an agent of the kind, whose properties would render speedily inert those of the quinine, it would avail us but little; for, it is not a substance of that character which would be likely to be administered with the wilful intention of destroying life, and an antidote will, generally, only be wanted when the physician finds he *has pushed his remedy too far*, and its injurious effects are already being manifested, and, in that case, the medicine has already passed the limits where an agent of the kind could reach it.

"As it is altogether likely that quinine is absorbed, and enters into combination with the circulating fluids of the body, and in all probability produces its impression upon the system in this way, its operation is thus a *remote* one, and the means adopted to prevent or relieve its injurious effects should be such as are found available in combatting the poisonous impressions of

other substances, supposed to act through the same medium. Thus, if symptoms arise during the administration of quinine calculated to create alarm, or to excite suspicion of its poisonous influence, it would be well to premise all treatment by the administration of a full and prompt emetic, in order to free the stomach of any remaining portions, which may not have been absorbed. The next step, then, should be to eliminate, as rapidly as possible, that portion which has reached and mingled with the fluids of the body, and for this purpose, it has been recommended in other instances of an analogous character, to *augment the natural secretions of the body.*

"This mode of treatment, which is based altogether upon the inference that the poison is absorbed and enters the circulation, and recommended as applicable or efficient only to poisoning from substances deemed to act in this way, seems to be a most reasonable one. I have certainly never witnessed or heard of any injurious, or seriously-unpleasant effects from quinine, when the functions of the skin and kidneys were being actively performed during its influence—especially the former. For this purpose the copious administration of warm diluent drinks, and hot pediluvia, or warm bath, would seem advisable. When the state of the pulse is such as to justify it, blood-letting it would seem, is another channel through which the quinine may be abstracted from the system, not only by freeing the system of so much as may be contained in the quantity of blood actually drawn, but as assisting also in promoting the secretions of the skin and kidneys.

"I am of opinion, that its poisonous effects may generally if not always be avoided by proper attention to the mode of its administration. A very common mode of administering it, and one very much insisted upon by patients generally, on account of its disagreeable taste in any other way, is in the form of pills. And, it is a practice with apothecaries, and with physicians who are in the habit of dispensing their own medicines, to keep a quantity of pills constantly on hand. These when made from a mass, formed by the addition of gum arabic, or common paste, get very hard before they are used, and when given under such circumstances, I have known them to pass through the bowels *entirely undissolved.* And, when combined with substances calculated to keep them soft, or even when prepared as administered, they may, and no doubt do occasionally become entangled or enveloped in flakes of mucus or other contents of the stomach and bowels, and thus pass off undissolved, and without effect, or they may meet with some obstruction in the bowels, and be *retained.* When this is the case—that the medicine is not dissolved, or absorbed regularly, nor yet does it escape from the bowels, from some cause or other and still being introduced into the system at regular intervals—a large quantity in this way may collect, until suddenly meeting with a solvent, (as first supposed by Briquet,) its whole force is spent upon the system at once, and it thus becomes the cause of serious mischief, when, if the same quantity had been given in such a way as to insure its timely absorption, such a result would not have happened. Of all the forms of giving it, that of the pill seems to me to be the most decidedly objectionable, and should never be adopted in cases of much importance, where it can be avoided. Another very common mode of giving it is by suspending it in syrup, mucilage or water. This is certainly less objectionable than that of the pill, though not equal to that of the *solution,* made by the addition of some acid in quantities barely sufficient to dissolve it. I prefer sulphuric acid to any other. This mode of giving it has been recommended by Briquet, on account of its safety. In my estimation it possesses a most decided preference over every other mode of administering it, and is the only one from which we can with certainty expect the timely and full effect of the medicine.

"When the stomach is in a condition to bear it, its absorption and activity can be greatly facilitated by *largely diluting* it with warm water. When dissolved and diluted in this way, even when given in what may be termed "heroic doses," provided the quantity to be taken is divided and given at intervals of one, two or three hours, its deleterious effects may always be

avoided *and the remedy persisted in with safety* in the absence of any manifestation of its influence, which we should never feel safe in doing when giving the "insoluble di-sulphate," whether in the form of pills or powders; for, in the former case we will always be advised of its unfavorable influence early enough for a timely withdrawal or modification of the dose. When given in this way, a given quantity seems to produce a greater effect in a much shorter time, than even a larger quantity when prescribed in either of the other forms; so that besides being a much safer mode, it is a more economical one, both as regards time and medicine; and the reason seems entirely obvious, for by dissolving and diluting it largely in this way, besides being *dissolved ready for the absorbents*, it is brought in contact with a much larger absorbing surface, and many particles which otherwise might lodge about the contents of the alimentary canal and thus pass off with them, in a state of solution would readily be taken up and appropriated by these vessels.

"This mode of giving quinine cannot be urged too strongly, for besides being a *saving* of a valuable and costly drug, and preventive of its poisonous effects, it will be found of great assistance in prescribing it generally. In cases requiring much delicacy and discrimination in their management, and where the propriety of the prescription is a matter of debate with the physician himself, and he wishes to be made sensible of the effect of the first dose of his remedy, in order to determine upon its continuance, it becomes a matter of great moment that the medicine should be administered in that form in which it will be most certainly and speedily appropriated by the system, and its operation made manifest to the physician. Dr. Holmes, in the number of this Journal for October, 1846, states that he is in the habit of giving quinine eighteen hours before he desires its effects. My experience with it leads to widely different conclusions. I have certainly witnessed a most sensible effect from a single dose one hour after it was given, and have prevented the recurrence of a most malignant form of chill by giving 22 grains diluted with oz. viij. of water one hour and a half before its expected invasion; and, in one instance, in the experiments on dogs, where 30 grains of quinine were dissolved and given to a half-grown puppy, on an empty stomach, efforts to vomit and convulsions occurred in six minutes and death resulted in fifty-eight minutes after the medicine was received into the stomach. This may be thought somewhat extravagant, yet it falls far, *very far*, short of the statements of M. Piorry relative to the rapidity of the action of quinine upon the human subject."

With respect to the *modus operandi* of quinine, Dr. B. thus observes:—

"Experience has not yet defined the limits of the application of quinine to morbid action, nor has it brought about any settled opinion of its modus operandi. It has been prescribed in various and opposite forms of disease, nor yet is there wanting evidence of its value in each. Whilst by some it is vaunted as a contra-stimulant, sedative, and antiphlogistic, by others it is employed purely for its excitant and stimulant properties. There are others again who view it as indicated in all morbid action exhibiting periodicity, or marked exacerbations and remissions among its features, and as antidotal, or opposed in its action, to malarial poison; and, still, there are others who laud its powers in controlling diseases which are neither marked by periodicity or supposed to depend upon the influence of malaria. In all this there seems to be something as incomprehensible as the mysterious action of the remedy itself. I allude to this subject not for the purpose of offering any *views* in relation to the mode of its remedial operation, but desire to mention, in connection with it, a fact, which seems to me to possess a degree of interest. Quinine *has been given* in inflammatory affections of the brain, and with reputed success; yet if there is any disease or complication of disease where the enthusiast would hesitate to employ his favorite remedy, or which is almost universally regarded as contra-indicating the use of quinine, it

seems to be that of meningitis, more especially when it is not attended with notable remissions. During the past summer I treated two of the worst cases of this kind which I remember to have ever seen recover, in which the value of quinine was most decidedly proved."

While Dr. B. admits that it is occasionally a stimulant, he yet maintains that it has "on innumerable occasions a most decided and unmistakable *contra-stimulant* effect." (p. 19.) Ten grains is the largest dose usually recommended by Dr. B. His usual mode, he states, is to give from 4 to 6 grs., and repeat at intervals of 2, 3, or 4 hours until 20 or 30 grains have been taken. Occasionally he has given it in larger doses, sometimes, for want of time, 20 to 24 grains at one dose; but in such cases he never repeats it in the same dose. Dr. B. considers quinine, very justly, to hold the first rank in the treatment of southern diseases; but yet he is confident that it is now being used too recklessly and indiscriminately, and in many cases with fatal consequences. Dr. B. gives a case which occurred in his own practice, where it proved fatal in a child 6 years old, in which it had been regularly given throughout two days; on the first, 2 grains every second hour, and on the second day, 2 grains every fourth hour, and then 4 grains given and repeated in three hours, nine hours after it had been suspended altogether. The author thinks that from 50 to 80 grains of a *pure* article of quinine given in solution at one dose, would produce death nine times out of ten in healthy adults, and occasionally in even smaller quantities. He also believes that many fatal cases from its abuse have occurred, of which the profession have not been advised; and that it has often been the cause of injury and even death when its agency has not been recognised, especially in the hands of those who were prepared to witness only its salutary operation.

ART. XIV.—*Criticisms and Controversies, relating to the Nervous and Muscular Systems.* By BENNET DOWLER, M. D. of New Orleans. (From the New Orleans Medical and Surgical Journal, September, 1847). New Orleans, 1847. 8vo. pp. 36.

THIS is a defence of the author's article entitled, "Experimental Researches on the Post-Mortem Contractility of the Muscles, with Observations on the Reflex Theory," as published in our Journal for May, 1846. (Vol. VI. p. 905). As was to have been expected, it has not received the unanimous approval of foreign critics, nor has it received, as it seems to us, that degree of attention at home, to which its merits entitle it. Mr. Marshall Hall, whose doctrines it ably opposes, manifested a more than usual asperity towards its author; as shown in an extract from a letter, which we received from him, and published at the time. The Medico-Chirurgical Review, also, took the author of "Reflex" to task, to say nothing of sundry other Journals; and now we find Dr. D. in the very midst of the battle, wielding his controversial broad-sword with the skill of a veteran, and the energy of a Saladin. The result remains to be seen. As a specimen of Dr. Dowler's style and manner, we quote a few passages.

"Far be it from me to say a word in depreciation of the transcendent value of neuralogical knowledge. The brain, its spinal prolongation, the individual nerves, constitute a central sun, which illuminates and controls sev-

eral minor systems, which would otherwise roll on in cheerless obscurity. The senses themselves, those inlets of knowledge, psychology, the doctrine of the mind, many morbid changes and healthful actions, vital functions and anatomical relations, have been not only elucidated, but to a great extent referred to their appropriate laws,—not indeed, by theories in themselves as inconceivably obscure as are the phenomena whence they are illegitimately derived, under the denaturalizing vivisections of the inferior animals, not by meaningless tremors, vibrations and convulsions in the muscles from irritating the spinal roots, and thence generalizing almost without limit,—not by localizing and isolating the functional phenomena (with a precision unknown even to phrenologists,) to a mathematical point or figure in some root or ganglion in the anterior peduncles of the cerebellum, or the thalami nervorum opticorum, as the special residence of the great All or the Me of neurology. Anatomy itself, to which Bell finally gave in his adhesion, is not the only route to be pursued; for strictly, there is not one neurological doctrine, which *à priori* is determinable from mere structure, from any aggregation or configuration of nervous atoms;—here even analogy is as voiceless as the dead. Neither the sense of taste nor the sense of smell can be inferred from any nerve-structure alone. Indeed, the whole material world is up in arms with analogies *against* this view as countenancing the fundamental doctrine of Bell, Hall, and many others, who ascribe motor *force* to the nerves only. It is possible to conceive that the muscles and bones, even the skin and the membranes, from their mechanism, might be endowed with force, motion, and the like; but as for the nervous matter, it has not from its very organization, a much greater pretension in that direction than the blood itself. Analogy (not a very convincing kind of proof, it must be confeseed,) is against this assumed, exclusive moving power as inherent in the nerve. Do men make ropes of sand, or levers of water? The method adopted by the reflex neurologists to show that the muscular force is merely a derivative one from the nerves, is inconclusive, nay, absolutely erroneous, as I have fully proved by adopting their own point of departure. The destruction of the spinal cord, the division of every discernible nerve and all the muscles not concerned in the special functional act intended to be performed, do not in the human subject even diminish the intensity or duration of muscular contractions,—do not prevent regular, and I might say intelligent flexions and extensions to which the spinal methods can make no pretensions."

Again he says:

If logic chopping were allowable, I would adopt the Reviewer's method, and ask, "what other conclusion remains but that the muscles are the necessary organs in sucking, crying, and defecating? Allow the anencephalus infant, a brain, a spinal marrow, a perfect nervous system, and every other organ in the most perfect state, and allow at the same time that, by some freak of nature, the muscles are wanting in their attachments, either at their origins or insertions, then of breathing, crying, and sucking there will be none, of complex associated movements there will be none, and of the Reviewer's exclusive spinal arguments there will be none.* The argument is altogether in my favor, and more than all the experimental proof is mine, beyond question. I have proved that in New Orleans, dead men and women from the icy circle to the torrid zone,—after cutting off the connections with the spinal marrow,—after amputating the shoulder so as not to injure the muscles of the arm, after dividing all the discernible vessels, and nerves, and

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* "That motions peculiar to life can exist without the accompaniment of *brain and nerves*, is proved by the existence of those animals which are destitute of them." (Blanc's Med. Logic, 121, Amer. Ed.)

Even Bell, admits "that animals, without possessing nervous cords, are susceptible of the impressions and reactions necessary to their existence." (Anat. and Phyr. 11, 41. Am. Ed.)

tissues, except the individual muscles to be called into action, can perform during many hours, definite functional motions, not the tremulous, convulsed, and therefore, unmeaning motions, which from Haller to Bell, have been vaguely referred to irritability, but the elementary or simple motions from which are compounded all the varied actions of the living man! The two muscles which bend the forearm, for anatomical simplicity, and still more for the enormous mechanical leverage which they overcome,* when a weight is placed in the palm, are the most convenient for experimental purposes.

"I have, as it were, insulated the muscular FORCE, and have noted, very imperfectly I admit, its isolated phenomena, shown its periodicity, its fits of action, duration, direction, exhaustion, extinction, its times, velocities, its decreasing ratios from increasing times, from repeated efforts, and from augmenting weights; nay, more, that it may, in a certain sense, be weighed, that is, exactly counterbalanced by the gravitating force of pounds and ounces. I will not say that I have proved positively, THE EXISTENCE OF AN IMMATERIAL ENTITY OR FORCE IN THE MUSCLE, but, I may say, that I have offered some presumptive proof to that effect. Omitting that immaterial, psychological entity, the soul, where is there so much proof, so many tests, going to show in any other tissue of the body, a force, possibly immaterial, and isolated, possessing so many properties, and which can be approached by so many methods, avenues, and tests? Inaccessible until after death, this force, whatever may have been its complications and dependencies during life, shows an utter independence of the spinal marrow, as well as of the entire nervous system. The brain, the spinal marrow, the nerves, under similar circumstances, appear as so much inert matter, without force, without function, without any apparent vital phenomena whatever, actually dead, and in the strongest contrast to their high functions in life, as the instruments of the mind, of sensation and of some of the principal vital phenomena. But there is a constant bias to assumption, and to be satisfied with the minimum of evidence in neurological doctrines, and the more so, as the subject is obscure; the mind yields to a flattering illusion rather than confess ignorance.

"How brainless infants contrive to cry, suck, and excrete, I will not tell the Reviewer, because I do not know. But this I know, that if Reflexians fix as the point of departure, the morphological type, unmeaning experiments upon the spinal marrow of the inferior animals, under denaturalizing processes, and thence proceed by analogizing speculations, to appropriate to their theory the encyclopædia of medical science, not excepting 'all the emotions, appetites, and passions, surely, experiments upon the human subject must be far more conclusive and comprehensive, and were they applied in the same latitudinarian manner, nothing would be left for future discovery; muscular motion would be to the organic, what gravitation is to the inorganic world, and the physiological mechanism would be like the celestial, but a matter of calculation, an estimate of simple and compound forces and velocities. Until then, a mystery will hang over the physiology of the 'anencephalus infant,' which, in the mean time, will deserve all the compassion expressed by an old poet—

'Ill fated youth! what stars malignant shed
Their baleful influence o'er thy *brainless head*?'"

The following remarks on frogs, are not destitute of interest.

"Is it true that a frog is the *essential analogue* of man in its anatomy, physiology, pathology, parturition, natural history, and so forth? Of the frog,

* "Bonelli states that the whole force expended by the muscles of the arm, when stretched horizontally, is 209 times greater than that of any weight suspended, at its extremity, and that the force of the biceps, compared with that of brachialis, is as 3 to 2.60, or as 16 to 13, and their absolute forces 300 to 260 lbs. (*Lancet*, May, 1846.)"

Cuvier says, "it buries itself during the winter under ground, or in the mud below the surface of the water, where it continues to live without *food or respiration.*"* Reaumur knew frogs to live in hot springs at 111°, and Spallanzani, at 138° Fahr.† Many facts have been reported, showing that they lived for ages without food and air in rocks and trees, wherein they had been completely and narrowly enclosed, &c.! Mr. Paget's Report on the progress of Anatomy and Physiology, in the British and Foreign Medical Review, for April, 1845, contains the following statement, which is here somewhat abridged :—'To prove the functional independence of the sympathetic nervous system, Volkmann and Bidder (Müller's Archiv. 1844,) have published an extensive series of experiments on the effects of removing from frogs, the brain, or spinal cord, or both, leaving the medulla oblongata,—the muscles were rendered at once incapable of contracting upon either voluntary or reflex stimulus, the circulation continued unimpaired two weeks after crushing the cord, fourteen days after destruction of the brain, five days after destroying both at the same time; the pulsations were as frequent and vigorous as in healthy frogs; the processes of exudation, absorption, urinary secretion, defecation, digestion, continued as usual; on the whole, no organic function was materially disturbed by the destruction of the brain and spinal cord.'

"The following quotation is taken from documents on the modern discoveries in the nervous system: ‡ 'The circumstances in the structure of frogs pointed out by Volkmann, (an anomalous distribution of ganglia and ganglionic fibrils upon the precise parts which are the subjects of experiment,) must in all experiments on these animals, have been attended by demonstrations only of correspondingly *anomalous*, instead of *regular function.*'—Once more: 'Redi removed the brain from a land tortoise. It appeared for several months to *enjoy life*, and *exercise* its *functions nearly as before the loss of the brain.*'§

"Professor Matteucci, in his work on Living Beings, (1847,) maintains, from his celebrated experiments upon frogs, that contractility is the vital property of the muscle *alone*,‖ and cannot be explained by electricity or any known cause. The same number of the Review, which declares in opposition to myself, that the doctrine of Bell and Hall "is a great truth henceforth to be ranked as fundamental,' offers to the rising sun of Italy, superlative laudations: 'Matteucci's work is alike valuable and interesting to the general reader and the professional man, to the natural historian and natural philoso-

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* An. King, 286, Lond. 1840.

† Ency. Brit. Ed. 1842, XIX, 153.

‡ Intro. 3.

§ Edin. Ency. X Herpetology.

‖ "'Inattention to the structure of nerves has led to *a mistake, that they have a power of contraction.*' (Bell's Anat. Phys. II., 53.) The very nerves which give all motion, have none whatever! Though I am no friend to the *exclusive* motor functions of the nerves, I never could go so far as this, much as it is in my favor. Although the entire limits of this paper, would scarcely suffice to warn the student against the illusions of the microscope, as an *exclusive pathological instrument*, yet, the following statement by M. Mandl, (author of a treatise on the microscope,) before the Academy of Sciences, in a recent sitting, may be worth translating: (See L'Illust, Feb. 20, 1847.) M. Mandl said that he had observed motions in the nervous system of leeches, magnified from 50 to 60 times. He separated a portion of the living leech, from the ganglionic chain, placing it in a drop of water, after having torn its black, cellular envelope, isolating the ganglion and the nerve, he noticed vital contractions as in the muscular fibres. M. Flourens remarked upon the occasion, that he had seen in his experiments upon the functions of the nervous system, a real and active movement on bringing together the two ends of a divided nerve. M. Serres, he continued, had long ago published experiments upon the contractility of the ciliary nerves.

"Professor Liebig adopts the bold assumption, that the nerve is the exclusive source of muscular motion, and this too, in the most literal, nay, mechanical sense, so that the *rôle* of the muscle, is that of a mere subordinate, passive, powerless instrument. (See An. Chem. 66.)"

pher, to the physiologist and the practical physician, etc.' At the same time it is said, 'our readers will not fail to perceive that the conclusions drawn by Matteucci from *his experiments* are opposed to the views of Dr. Marshall Hall. The Italian professor regards the irritability of the muscular fibre as *inherent*, whereas Dr. Hall considers it as *derived from what he calls the true spinal system.*' Now, if 'the professional mind of Europe' can adopt these contradictory views of the Reviewer, or prove that man can live in good health for months without the brain and spinal marrow, 'that little or nothing can be learned in physiology without these cruel reptilian experiments, (heretofore denounced by the Medico-Chirurgical Review,*) and that premises laid among these, can legitimately be appealed to, in order to bring out conclusions to the medical sciences, so as to harmonize human physiology, pathology, therapeutics, and obstretics, then, it must be admitted, that 'the European mind' has made great advances, indeed. But it may be doubted, whether any act of the 'professional mind,' can make frogs essentially like men, not to say anything of endowing them with a physiological superiority! Sidney Smith maintains that frost cannot be put off by act of Parliament, nor can spring be accelerated by any majority of both houses. In analogy, of an obscure kind, the same difficulty is not experienced. Hamlet saw in the entire world, the analogue of an extensive prison, having 'many confines, wards, and dungeons; Denmark being one of the worst.'—Polonius found in a cloud, the analogism of many things at once; 'it was like a camel, like a weasel, and very like a whale.'

The following is characteristic of the author.

"Ask, O! student of medicine! ask your unprejudiced judgment, were there ever errors so general, and yet so stupendous, as those now called modern discoveries in the nervous, especially the spinal system. Are they not wholly based on certain experiments, which have no known connection with the doctrines sought to be deduced from them? Have these phenomena any fit scientific application, except to the individual animals or class experimented on? Have these phenomena any probable value even in this identical class excepting the special conditions induced by vivisections, and so forth? Can denaturalizing processes illustrate, nay, constitute complete discoveries in, and for conditions essentially different? Were these phenomena derived directly from man, or from an animal precisely similar, would they be admissible proof, by which to establish the one hundredth part of what is now supposed to be established by them? Are not these phenomena for general purposes obscure, blind, meaningless, and therefore valueless? or at least not yet matured into exact science? These experiments are praiseworthy, and constitute a portion of knowledge highly interesting, in comparative physiology, but very limited in their import; but they neither prove the nature nor *modus* of sneezing, nor do they constitute scientific midwifery; they do not prove that the passions and paralysis, hæmorrhage and convulsions, are exclusively due to 'the true spinal marrow.' These matters are thus, not without reason, alluded to frequently; and, as I have satisfied myself, if not others, that muscular contraction is not dependent on the spinal marrow or nerves, and, that therefore the fundamental principle of the new system is absolutely erroneous, I deem it no crime to publish what I believe, though the times be troublous, though neurological terrorism now reigns, and opposition, like spitting against the wind, is spitting in one's own face. France, so celebrated for medical science, heretofore, generally opposed to the most important improvements and doctrines of English medicine and surgery, (witness Hunter's doctrine, of healing wounds by the first intention,) has bowed to Bellism, and of

* "When this, the Fiftieth volume of the Review, recommending as the very basis of physiology, cruel and fallacious experiments, shall be placed side by side with its fellows, will not the great *ci-devant* spirit of that work frown upon the new comer?"

course, Reflexism will follow. But history is, in such cases, very instructive."

Again the author remarks.

"The reflex-neurologists fail uttterly in showing any positive or even probable connection as cause and effect, between their experiments and theory. The vast assemblage of physiological and pathological phenomena, which they claim as having been explained in the clearest manner by these experiments, have not been traced link by link, either in the ascending or descending series; their order, uniformity, succession, antecedence, sequence, have not been ascertained and made known, with the concurrent but unessential concomitants and co-incidents; their pathological anatomy, whether *material* or *immaterial*, has not been plainly traced to these experiments. Indeed, no material or immaterial morbid anatomy of the spinal cord, the seat of so many diseases, has ever been given, or even described; and yet, there must be in this cord, a change for every malady. What are the spinal anatomical characters of hæmorrhage, or hydrophobia,—sterility, or stranguary,—paralysis, or passion,—asthma, or abortion,—tic, or tetanus,—all spinal in their location! Now, I lay it down as an axiom in morbid anatomy, that no great and important tissue or organ of the whole body, presents on an average, so *few well-marked structural alterations*, as the spinal marrow, provided it be examined in its *material form*, from one to six or even twenty-four hours after death, leaving out immaterialities, incorporealities, and spiritualisms. In fact, the *spinalists* have been an unsuccessful sect. Le Gallois, (the date of whose publications on the vital functions of the cord, is not precisely recollected,) early in the present century, claimed the medulla spinalis as the source of life to the entire trunk, as well as the exclusive seat of sensation and motion, all being independent of the brain! The cord ought to be the focus of morbid alteration—if anatomy have anything material in it, as some people have supposed in their simplicity and ignorance. Its physiology, I repeat it, is still more obscure than its anatomy. No one will pretend that there is anything in the physical structure of the anterior roots, by which motion can be recognised or inferred as a nerve-property. The physico-analogical argument is against the supposition, and still the more so when the roots are supposed to communicate to the muscles a power, which they themselves do not possess in virtue of any special physical or anatomical adaptation. I do not positively deny that the anterior roots exercise an influence upon muscular motion during life, but, I contend, that their influence as the exclusive motory force or agent, is not proved, is not even probable, while the muscles do possess adaptations in size, strength, direction, origin, insertion, and mechanical contrivance, every way adapted to act in the most independent manner as motors, as far as any one tissue can lay any claim to independence."*

We conclude with a single quotation more.

"The ink with which the last sentence was written, was scarcely dry, before the last number of the Lancet was received, in which it is proposed to examiners, to *require all candidates to be examined in the reflex theory.*† Innocent youths, never yet guilty of a homicide, *secundum artum*—candidates for M.D.—who have learned in the Lancet, that not one of the Royal Society, (the most learned in Europe,) understands the reflex discovery, (its inventor excepted)—these poor lads are required to comprehend that which the graybeards themselves cannot.

* * * * The sun had gone down upon the earth. The moon was

* "Englishmen ought, by this time, to know something of muscular motion, as Dr. Croone, who died in 1684, bequeathed not only money, but the profits of a house, for annual lectures on that subject. The Croonian Lectures on Muscular Motion have continued 163 years! Many rich prizes, in both Continental and Insular Europe, are awarded annually, for similar purposes. It is easy to swim when held up by the chin!

† June number.

mounting above the plains of Louisiana, while many reflex-moons were dancing upon the turbid waves of the Mississippi, which rolled noiselessly beneath my window. The pendant gray moss, a parasite of the cypress forest which overlooks the city, now blackened by night, waved silently in the breeze. I fell asleep, as soundly as John Bunyan while writing the Pilgrim's Progress. I dreamed I was a young man, walking thoughtfully upon a shore, but whether it was the shore of the Mississippi, the Chesapeake, the Hudson, the Thames, or the Seine, I could not tell. Hard by arose a great temple, whose spire pierced the clouds. It was the medical college, wherein I was going to be examined for the degree of M. D. I feared the ordeal. Every artery of my head throbbed. I hastened to my room to review my studies. The sciences, one after another, passed before my mind. Surgery with his catlings, scalpels, and saws—chemistry with its crucibles—obstetrics with her screaming infants! To the dead body I was perfectly at home. I marched up to a skeleton, in my room, and struck it with defiance! Dry bones, I know you all! The skeleton grinned! A voice came from its hollow skull. REFLEX! REFLEX! REFLEX! I was once a student, but the nerves distracted me—turned my brain. 'I sought the bright day and with an ardent longing after truth, went miserably astray in the twilight.'—Beware of the reflex function, for even the Royal Society cannot, the Reflexians do not, and the students should not, understand it."

As we might be considered partial umpires in the case, Dr. Dowler being a particular friend, and one of our most esteemed and valuable correspondents, we shall refrain, at present, from expressing any opinion as to the merits of this controversy.

ART. XIII.—*A Text Book on Natural Philosophy, for the use of Schools and Colleges. Containing the most recent Discoveries and Facts, compiled from the best Authorities.* By JOHN WILLIAM DRAPER, M. D., Professor of Chemistry in the University of New-York, etc., with nearly 400 Illustrations. New-York: Harper & Brothers, 1847. 12mo., pp. 381.

LIKE the author's Text Book on Chemistry, which we noticed in a former number, the present work is exceedingly well adapted, as a text book for schools and colleges. Prepared upon the same plan, it gives in separate chapters, the leading points of each lecture, avoiding lengthened explanations and demonstrations, which are supposed to be supplied by the teacher himself; thus presenting to the student a clear view of the great facts of physical science, without perplexing his mind with a multiplicity of details. From a careful examination, we are satisfied it is the best work for the purpose yet presented to the public, and as such, we hope it will have a corresponding circulation.

ART. XIV.—*Wood's Quarterly Retrospect of American and Foreign Practical Medicine and Surgery.* Vol. 1, No. 1, 8vo., pp. 64. R. & Geo. S. Wood, 261 Pearl st., N. Y.

THIS work is after the plan of "Braithwaite" and "Ranking," and presents one feature not found in either of these digests, viz.: its principal contents being made up from American Medical Journals. The present number we suppose can hardly be considered a fair sample of what is to come; but if the plan is fully carried out, as it ought to be if attempted at all, it will supply an acknowledged disideratum in the literature of the profession in the United States, and deserve an extensive patronage. If we are allowed a suggestion, we should say that

every American Journal should be regularly consulted in making up its pages, and no article passed by which possesses practical interest. If our journals were all digested and posted up in this manner, within a reasonable space, we doubt not, the work containing such digests would receive the general approval and patronage of the profession. We trust that this will be done in the future numbers of the work.

ART. XV.—*Triumphs of "Young Physic," or Chrono-Thermal Facts.* By WILLIAM TURNER, Esq., A. M., M. D., Member of the New-York Medical Society, etc., etc. 8vo., pp. 31.

IT is painful to reflect upon the position which Dr. T. has voluntarily assumed, and it is with no desire to add to the discomforts which he must daily experience, that we condescend to notice the pamphlet whose title we have given. We have formerly regarded the writer as a gentleman of respectable attainments, one who would stand by the honor of the profession, and be the last to suffer it to be tarnished in his hands. We have been grievously disappointed in common with many others, who expected a far different course. We do not pause to ask what possible causes could have induced the writer of this pamphlet to descend so low, as to put forth such a publication as this; they are known to his own heart, and there we leave them. Dr. T., however, need not deem it strange, if a construction be put upon his motives, both by the profession and the public at large, by no means favorable to his reputation, or his standing as a man of honor and integrity. Without charging Dr. T. with being influenced by purely mercenary motives, for we judge no man, we would urge him to pause in his career and retrace his steps. If there is anything good in chrono-thermalism, why in the name of common sense, adopt it, as every one else does, but do not denounce those who cannot accept it as a perfect system of medicine, complete and full in itself, and to which everything else ought to bend. We look upon this doctrine as we do Homœopathy, Hydropathy, Botanic Medicine, etc., etc., as but "fragments of the general science of medicine, distorted, disguised, and misrepresented, to suit the selfish purposes of those, who, possessing more cunning than honesty, find it convenient to bend their pliant consciences to practice on the credulity of deceived and misguided communities."

Dr. T. needs not to be told that the medical profession in the United States is *eclectic* in the largest and most liberal acceptation of the term,—that "it avails itself of every circumstance which can shed light upon or in any manner develop the true character of diseases, and resorts to every remedial agency of every description, within the resources of human knowledge, so far as it may be available, for their prevention, mitigation, and cure;" we know no predilections, no antipathies, but pay homage to truth alone. Since this is so, what manner of excuse can any honorable man have, in proclaiming that any of these segments or cornices of the temple of medicine, constitutes the whole building; and that for his part, he is ready to maintain that the *weathercock* at its summit, if it have one, is virtually and truly the entire structure itself.

Dr. T. proclaims upon the title page of his pamphlet, that he is a "Member of the New York Medical Society." We are somewhat surprised to find that Dr. T. is willing to have it known that he once belonged to the regular profession—we would commend to his notice the fol-

lowing extract from its adopted code of ethics, and to which he bound himself in honor to conform, by becoming a member.

VI. "*Public advertisements* or private cards, inviting customers afflicted with defined diseases; promising radical cures; engaging for no cure, no pay; offering advice and medicines to the poor *gratis; producing certificates and signatures, even from respectable individuals, in support of the advertiser's skill and success, and the like; are all absolute acts of* QUACKERY, which medical institutions should always repress and punish by the rejection or expulsion of those who commit them."

How does the author exonerate himself for a deliberate violation of the code to which he gave his assent by becoming a member of the Society?

With what show of reason can Dr. T. defend himself for his habitual attacks upon the regularly-educated practitioners of medicine?

We quote the following as a sample from his pamphlet:

"The following incident, occurring while these pages are in progress of preparation, illustrates the correctness of the remark of the biographer of Des Cartes, 'the last crime which is forgiven is the announcement of new truths.' Six months before my reprint of Dickson appeared, a medical friend, well known for his numerous valuable contributions to science, and not less distinguished by all those qualities which grace the gentleman, did me the honor to dedicate to me, in very complimentary terms, a new work which he had just prepared. Will it be believed that this act of friendship was made the pretext for excluding him from membership in a new medical association; and that the committee which had charge of the matter actually had the impudent meanness to propose to my friend, that if he would publish another edition of his book, in which the dedication to me should be cancelled, his case should be taken into consideration! Yet such was the fact. Of course the disgraceful proffer was rejected with indignation; but what a base and cowardly proposition for men pretending to be gentlemen! If Chrono-Thermalism and its advocate are to be put down, let it be done in the open and manly way, recognised by all right-feeling and honorable men. Moral assassination, through means of secret cabals, is worthy only of a barbarous age or a degraded class; of an inquisition or a penitentiary. What confidence, let me ask, ought the public to repose in people capable of such infamy? What is not a little odd in this connexion, is the fact that four out of the five persons concerned in the above transaction, only a few years ago signed a paper to the Governor of New York, recommending and eulogising me in the highest terms. Ought they not themselves to be excluded by their own showing? Or have they one flesh of fish and another of fowl (foul!) in their immaculate Sanhedrim?

"In order to break the force on the public mind of the new and successful treatment of Apoplexy without the lancet, the assertion has been industriously circulated that the patients were drunk—hence, not apoplectic. The maliciousness of this falsehood is only equalled by its absurdity and short-sightedness, since time and experience are sure to meet it with a daily refutation.

"In giving the following cases, I have not added the particular course of treatment pursued in each. To have attempted that, would have been to reproduce here a great portion of Dr. Dickson's book, and to swell my publication far beyond the limits designed. To the masterly production of that great author, I refer all who may wish to attain a knowledge of the greatest medical discovery of this or of any age."

Does Dr. T. complain that he is noticed too severely by the medical press? What claims has he on its forbearance? Why does he

wish to have it known that he is a member of the NEW-YORK MEDICAL SOCIETY, composed, as it is, of the very men whom he affects to despise and to charge with "*infamy*" and conduct worthy of the "penitentiary?" Meanly as Dr. T. professes to think of the regular faculty, he wishes the public to understand that he belongs to them. We are sorry the compliment is not reciprocal, and that the author is not satisfied with reflecting the light of chrono-thermalism, without appending to his name what, ordinarily, would be a mark of honorable distinction, but which, in the present instance, only proclaims his own dishonor. The profession would doubtless feel themselves honored by his never alluding to the fact that he was at one time a member of their body. When a medical man of respectable education casts aside all feelings of shame, and all the honorable principles which are supposed to bind together gentlemen—members of a common profession—and adopts a course at variance with the rules which are expected to regulate their conduct with each other and with society, and which form a part of their written law—resorting to the lowest acts of the empiric, we should feel that we had poorly discharged our duty; that we had indeed proved recreant to our trust, if we did not rebuke such conduct in the strongest terms which outraged truth, justice and honor demand at our hands.

ART. XVI.—*Principles of Human Physiology, with their Chief Applications to Pathology, Hygiene, and Forensic Medicine.* By WILLIAM B. CARPENTER, M. D., F. R. S., etc. etc. Third American from the last London Edition. With notes and additions by MEERDITH CLYMER, M. D., Consulting Physician to the Philadelphia Hospital, etc. etc. With three hundred and seventeen woodcuts and other illustrations. Philadelphia: Lea & Blanchard, 1847. 8vo., pp. 752.

THE fact that a third edition of the Principles of Human Physiology, by Dr. Carpenter, has been called for at the present time, is sufficient evidence in itself of the value placed upon it by the profession. In this edition we are informed that the author has added new matter to the amount of nearly one hundred pages, and that the whole has undergone a careful revision. Many new and neatly-executed wood engravings from original drawings have been introduced. Among the additions is a chapter on the "Varieties of the Human Race," also one on the "Primary Tissues." The author "has particularly directed his attention to the settlement of points which appeared to him to be left doubtful by others." The American editor, by the "liberality of the publishers, has been enabled to add numerous additional illustrations, which, accompanied by copious references, will be found to enhance the value of this edition, and to peculiarly adapt it to the Student of Physiology. There are one hundred and fifteen more woodcuts in this than in the third English edition, and one hundred and one more than in the last American." From this enumeration of the numerous additions made to this edition of Dr. Carpenter's Physiology, it will be seen that it possesses a decided advantage over the former ones. As a text book, it has been received into all our colleges; and from a careful perusal of this edition, we can recommend it to the student and profession at large as the best exposition of the present condition of Physiology within their reach.

PART THIRD.

American Intelligence and Editorial.

American Microscopes.—A good Microscope has become so essential to the physician, that no apology is needed for calling the attention of our readers to this subject. We scarcely know whether anatomy, physiology, or pathology is most indebted to its revelations; but we are certain that no one who wishes to push his researches into the very *penetralia* of the human body, will rest satisfied without being in possession of such an instrument. To it we are indebted for much of our knowledge of what takes place in the organism, as the capillary circulation, and the early processes of development both in plants and animals; to say nothing of the nature of those changes, which are constantly taking place as the result of abnormal action.

It gives us much pleasure to state, that we are at length enabled to procure a better microscope at home, than we are abroad, and at a much more reasonable price. We learned some time since, that Mr. Charles A. Spencer, of Canestota, N. Y., was manufacturing microscopes, telescopes, etc., equal in all respects to those imported; but it is not until very recently that we have been put in possession of facts and testimony, which establish beyond dispute, their superiority to all others. Professor Bailey, of West Point, in a recent letter to Professor Torrey, (dated Sept. 27th, 1847), thus speaks of one of Mr. Spencer's instruments.

"I have just had very great pleasure in an interview with Mr. Spencer, and in looking through his microscopes, I am proud as an American of their performance. You know we tried in vain with our highest powers to see the cross lines on the *Navicula Hippocampus*. Mr. Spencer's lenses show them beautifully, and they may even be seen by his middle power. He has shown me lines on several objects on which I could never beofre find any trace of them. I feel therefore no hesitation in pronouncing his microscopes *far superior to Chevalier's*, and they show all the lines in the most difficult objects, which I could see with the Lowell instrument, at Boston. This is a triumph for American art, in which we should all rejoice, and feel it a duty and pleasure to spread the knowledge of."

Mr. Spencer has been lately engaged to furnish as good a microscope as he can make, of the large Chevalier form, for the Smithsonian Institution, without regard to cost; also, one for Princeton and Geneva Colleges. The large Chevalier form, which costs with the duties and without polarizing apparatus, etc., $250, is made by Mr. Spencer, with a full range of powers, for $200; and with polarizing apparatus, micrometers, compressor, electric conductor, camera lucida, etc., for $225. The small Chevalier, which costs with these powers and no auxiliary apparatus, $100, is furnished by Mr. S. for the same price; and the same with a greater range of powers and apparatus, for $125 to $150. His vertical and oblique instruments, vary in price from $75 to $150, with lenses far superior to any of the Chevalier that we have examined. We confidently recommend Mr. Spencer's microscopes to all who wish to supply themselves with such an instrument, believing that their highest expectations will not be disappointed.

MEDICAL REFORM, THE LATE NATIONAL CONVENTIONS, ETC.—We have been highly pleased with the manner in which the profession generally have received the proceedings of the late Conventions; as indicated by the subsequent action of those local societies whose regular meetings have been held, and by the numerous notices in the medical periodicals of the country. We say the profession *generally*, because there are a few exceptions among the medical journals, or we should rather say, among the contributors to them, who have viewed the whole movement with decided disapprobation. But of this we do not complain, having full faith in the maxim, "that *truth*, when left free to combat error, will prevail." Neither would we trespass on the time and patience of the reader were we not desirous of entering our protest against some points which have been introduced into the discussions on this subject. The first point consists in making a comparison between our system of medical education and that of France, and other countries of Europe; and then basing the necessity or *non*-necessity of reform, on the results of such comparison. We object to such a basis, first, because it gives to the opponents of reform all the advantages of national pride and prejudice, influences which are often more powerful than facts or reason; and secondly, because it has no applicability to the case. For the question is not, whether the system of medical education pursued in this country is inferior or superior, or equal to, that of England, France, or Germany, or China or Hindostan; neither is it, whether the profession itself is equal in practical skill and energy to that of any other country. With the same propriety might the statesman cease his efforts to improve the laws and social condition of his country, on the grounds that they were already as good as those of other nations; a position, the absurdity of which, would be apparent to the dullest intellect. The only true questions relating to this branch of the subject, are, whether our system contains important defects; and if so, whether they admit of being remedied? If these two questions receive an affirmative answer, then, and not till then, does it become our duty to look ahead and avail ourselves of the experience of all nations in search of the best remedies. But another and far more objectionable point, consists in separating the mass of the profession and the professors in medical colleges from each other, and not only representing them as distinct classes, but as though they really possessed important conflicting or antagonist interests. Indeed, it seems to have been taken for granted by some from the very beginning, that all the movements in favor of reform, had their very origin in opposition to, and haters of the medical colleges; and that the only object of the advocates of reform, was to lay some restrictions on the action of those institutions. Now we protest against this course as alike illiberal, unjust, and derogatory to the dignity and welfare of the whole profession. It is illiberal, because it is imputing motives to others which their acts will not sanction; it is unjust, because not founded in truth; and injurious to the welfare of the profession, because it is directly calculated to excite and foster jealousies and prejudices, where mutual dependence should beget feelings of mutual cordiality and support. What real interests do the colleges possess in *opposition* to the interests of the whole profession? Will those professors who have so strenuously opposed all movements in favor of reform, *admit* that it is the interest of the colleges to graduate *ignorant* and *unqualified* men? If so, then indeed they have an interest, not only in opposition to that of the mass of the profession, but also in strong conflict with the dearest interests of all mankind besides. And the sooner it is understood, the better will it be for the cause of humanity. That some in their zeal for mere present advantage, may have acted on a policy so mistaken and ultimately ruinous, may be true. But if so, their course is not less certainly injurious to their own final prosperity, than to the interests of all around them; for if there is one truth clearly demonstrated by the experience of all ages, it is that colleges and all other institutions of learning, are sustained and patronized in proportion to the degree of sound education and enlightenment existing in the community on which they depend. Hence, no class of men has really a stronger interest in maintaining a high and liberal standard of education in the medical profession, than those connected with the medical colleges.

Whether they always have, or are now all of them acting up to this, their *real interest*, is another question, which we do not propose to discuss at present. If the foregoing sentiments are just, where is the propriety of the following sentiment recently put forth by a distinguished professor in the West? "In the first place," says he, "the Convention must be divided into two classes, viz.: the *reformers*, and those to be affected by the contemplated reformation. The first class embraced all the delegates from medical societies, and meetings of Physicians; the second, the professors of the medical schools. The *great object* of the first class was to place some restrictions upon the action of the second class," etc. And also the following: "That they," (the professors) "were in a small minority, and felt their weakness, and the utter inutility and hopelessness of opposition to the proceedings of the *reforming* gentlemen, however much they might disapprove, was very perceptible from their *weakness* and *humility*. Never have I seen more exemplary equanimity and *patient submissiveness*, nor a more striking exhibition of the Christian doctrine, 'when you are smitten on the one cheek, turn the other,' than were displayed during the meeting of the National Medical Convention." "Meekness and humility," "patient submissiveness," indeed! What a caricature on truth and common sense!

After the reader has dropped a tear over this "humility," let him glance his eye over the published proceedings of the Convention, and after noticing who took an active part in the proceedings and occupied a fair share of the time, let him turn to the stations of honor and influence. He will there find only the President, three out of four of the Vice Presidents, and the chairman of at least six out of the eight regular standing committes, belonging to that "small minority," composed of professors. Verily, their "submissiveness" must have been, officially at least, an *honorable* one.

We cannot pass on, however, without a few words of comment on the division made in the first part of our quotation. So far is that division from being true, that the cause of reform numbered no abler or warmer advocates than those found in the professorial ranks, and no more zealous opponents than were found among the lay delegates. Indeed, from what source have the profession received their first lessons on the necessity of reform? Has it been from those classically styled "miners" and "outs," by one learned writer, or the "*reformers*," as they are called by another? Let those who have had the pleasure of reading the introductory and valedictory addresses of such men as Caldwell, Harrisson, Drake, Mitchell, Moultrie, Jackson, Dickson, and many others, all eminent professors, answer this question. We repeat then, that the interests of the profession and the professors are identical; that they are alike in favor of all possible advancement in the cause of Medical Education, and professional attainments. And if there was ever a movement affecting the interests of a large class of men, characterized by a spirit of mutual concession, of noble forbearance, and a strong desire to harmonize all interests, so as to accomplish the great work of elevating and ennobling our profession, without even temporary injury to any, the *present* is that movement. Under the benign influence of such a spirit, much has already been accomplished; a standard of preliminary education has been raised, a permanent national organization has been effected, and an appeal made to the colleges in favor of their extending their courses of instruction. Neither has that appeal been made in vain; for though but two or three of the oldest colleges have formally extended their regular terms, yet the many in which extra preliminary courses have been announced, show too plainly to be mistaken, the influence that is abroad. Then let a frown of disapprobation rest on every effort to create sectional prejudices, or conflicting interests in the profession. But on the contrary, let professors and non-professors, continue to mingle with each other in the future meetings of the American Medical Association, in the same spirit that characterized the late conventions; let the overzealous exercise patience, and the timid take courage; while all shall unite in honestly endeavoring to promote the integrity, the honor, and the usefulness

of the whole profession, and every year will waft us rapidly on towards the highest degree of human perfection.

New-York, Sept. 29, 1847. N. S. D.

ADULTERATION OF DRUGS.

"NEW-YORK, October 20, 1847.

"TO THE EDITOR of the N. Y. Journal of Medicine.

"The September number of your Journal contains a communication from the College of Pharmacy, with your editorial remarks. These remarks, however pertinent to the subject, are calculated to convey the impression that we are engaged in the business of importing spurious drugs and chemicals, and selling them for pure and genuine. We therefore think proper to make this statement:—Some months ago we requested our house in London to order us a sample (100 pounds) of Blue Mass, containing 20 per cent. of quicksilver. It was in fulfilment of this order that we received a consignment of the blue mass which it is said Prof. Reed has analyzed, and found to contain 7 1-2 per cent. of mercury. We received and sold it as containing 20 per cent., and were justified in doing so by the price charged us in England. When we were informed of the result of Prof. Reed's analysis, we immediately stopped the sale, and offered to take back all that had been sold; a course we have always taken, and shall take, in the case of every article sold by us, which may prove inferior in quality. This is all our concern with the blue pill. The pretence that druggists who buy medicines of wholesale and commission merchants, to dispense them or sell at retail, are imposed upon or misled in the purchase of inferior articles, is too unfounded to deserve any other answer than can be gathered from the article in question. The price is an infallible test. Our customers require, and we consequently import and sell to them, blue mass at $1 20 per lb., and a common article at 75 or 80 cents. We have introduced into this market a number of medicinal preparations of the very highest quality, for those who will buy and pay for them. For those who require inferior articles we keep inferior articles, which we sell, and they buy, as inferior, and at a less price.

"Believing that the implied charge, in your remarks, against us, was not intended by you, we think you will not hesitate to insert this notice in reply.

"Your obdient servants,

"CUMMING, DODGE & CO., 43 Fulton."

Remarks.—It is due to Messrs. *Cumming, Dodge & Co.*, to state, that we had not the remotest intention of singling out their very respectable House, in the remarks we made in our last number, on the adulteration of drugs, as being guilty of the practices then referred to. Our remarks were of a general character, altogether, and were so understood, we believe, by our readers. We regret, however, to learn that Messrs. C., D. & Co., are in the habit of doing, what we severely censured, namely, importing drugs of an *inferior* quality, to accommodate those who wish to speculate or deal in such articles without regard to the effects of such a practice on the lives and health of the community. We do not accuse them, be it understood, as selling such articles as *genuine;* far from it; but what security have they, that those to whom they sell, will not retail them to physicians, and other retailers, as genuine drugs. It was this very practice of selling inferior articles of medicine *at all*, that we censured; and shall continue to do so, until we are convinced that dollars and cents are of more value than life and health. We have also some regard for the reputation of our professional brethren, who are every day suffering from unsuccessful practice, consequent on the use of adulterated and inferior medicines. This, in fact, is one of the great causes of the loss of confidence in the profession, which has recently occasioned so much surprise; and it will not be restored, until we can be certain that the medicines we use are of the *best quality* that can be obtained.

We do not retract one *iota*, then, of what we have said; on the contrary, we intend, before long, to open another budget, and show up the entire secrets

of the spurious drug business, as practised both at home and abroad. We have only made a beginning, and we hope our good friends, the wholesale dealers, will bear with us, while we expose such practices as we think ought to be laid open, for the benefit of mankind in general, and physicians in particular. It is idle for Messrs. C., D. & Co. to pretend that druggists are not often imposed upon and misled by wholesale and commission merchants in the sale of drugs; and we are surprised that such intelligent and respectable gentlemen should set up such a claim. The facts of such a kind, within our own knowledge, are altogether too numerous, to allow us, for a moment, to admit any such exemption. Moreover, as Messrs. C., D. & Co. acknowledge that they have been deceived by "their own house in London," in relation to the Blue Mass, what right have they to pretend that they are not, and have not been, imposed upon by others, who would be altogether less scrupulous and careful in their dealings. The *price is not an infallible test*, according to Messrs. C., D. & Co.'s own showing—for they paid, themselves, as much for the Blue Mass, imported by them, as if it had contained 20 per cent. of mercury, whereas it contained but 7. They state that they were justified in considering it as genuine, "from the price charged in England"! We should have supposed that this single case might have opened their eyes to the fact that price is not an infallible test any where, or under any circumstances. If the original manufacturer and chemist is not deterred from practising imposition by the fear of detection, what is to prevent irresponsible and second-hand dealers from doing the same? We have no such confidence as this, in the immaculate honesty of commission drug-dealers, any more than we have in the honesty of any other class of men, where there are so many inducements, and so many facilities too, for deception and imposition. Messrs. C., D. & Co. have evidently a better opinion of mankind than we have. We trust they may not suffer more severely from misplaced confidence in future.

They tell us that they have "*good*" articles for those who want good, and will pay for them, and bad, or "*inferior* articles" for those who want inferior: thus manifesting a truly accommodating spirit to customers of every class. Now, we must be permitted to say, that we cannot reconcile such a practice with our notions of right and duty towards our fellow-men. This rule may possibly answer in relation to articles of trade and commerce, generally; but it will not do to apply it to *medicines*; articles on whose purity and genuineness, the success of the medical practitioner, in other words, the lives and health of the community, depend. We have no objection to Messrs. C., D. & Co. selling their dye-stuffs, their copperas, indigo, madder, logwood, etc., in this way, but we protest against their ordering or selling inferior medicines, those, we mean, for internal use, especially. *Who buys their inferior drugs?* Surely not the physician, for he never orders any medicine but of the *best* quality. We, at least, have never known one order a poor article, when he could get a good one. It is, then, the retail druggist and dispenser who purchases the inferior articles. Does *he sell* them for *inferior?* We put the question to Messrs. C., D. & Co. Do you, gentlemen, on your consciences, believe, that the medicines which are bought of you as inferior, are *sold* as such? You will say no such thing. We know our professional brethren throughout the United States too well to believe, for a moment, that they are influenced in the purchase of medicines, by the *price* of the article instead of its *quality*. Their own reputation, if no higher considerations, would prevent their employing adulterated or inferior articles, on which they could place no dependence.

No, no, gentlemen, you must reform your practice altogether. Keep no medicines but what are pure and genuine and of the best quality, and we will agree to use what little influence we have, that you do not suffer by so doing. At any rate, we beg our friends, (we hope we may call them such,) to consider this matter again, and see whether the positions we have taken, are not such as interest and duty prompt them also to sustain.

CIRCULAR

Of the College of Pharmacy of the City of New-York, addressed to the Medical and Pharmaceutical Institutions and to Physicians and Apothecaries of the United States.

The undersigned, a Committee of the Trustees of the College of Pharmacy, of the City of New-York, respectfully solicit your attention to the proceedings of the Board, on the 9th inst, viz:

"At a special meeting of the Board of Trustees of the College of Pharmacy, of the City of New-York, held August 9th, 1847, convened for the express purpose of taking into consideration the best measures to prevent the introduction, throughout the United States, of sophisticated and misnamed Chemical and Pharmaceutical preparations—it was unanimously

"Resolved, That the officers of this Institution be requested forthwith to call the attention of the Secretary of the Treasury of the United States to the fact that large quantities of spurious medicinal preparations are being introduced daily into this country, not only to the prejudice of the Custom House revenue and the honest importer, but in the sequel jeoparding the health and lives of all those who require medical aid throughout the land. That the Secretary of the Treasury be respectfully requested to apply the most stringent regulations within his power, to check this alarming growing evil.

"It was further Resolved, That the Philadelphia College of Pharmacy, and of other Colleges of Pharmacy and of Medicine, be officially requested to unite with us, in presenting memorials to Congress, to devise means to suppress this most dangerous fraud, by making all such sophisticated articles liable to forfeiture."

In accordance with our instructions, we respectfully ask your co-operation in a general call upon Congress, at its approaching session, for the passage of such a law as may effectually resist the villany of manufacturers and importers of base compounds, counterfeit and misnamed articles, intended for medicine, so far at least as it can be done, in their passage through the Custom House, by competent inspection, forfeiture and exposure of the shame now borne in secret by the participators in this traffic.

A few of many facts may be stated in illustration of the urgent necessity of such a law.

Bromide is imported and sold for Iodide of Potassium, some parcels being mixtures and others entirely Bromide. The Iodide is also adulterated frequently in large proportion with other salts of an entirely different character.

Blue Pill is imported containing a per centage of Mercury from 10 down to 7 1-2, mixed with blue clay and Prussian blue, to give the proper density and color. Two importations of this kind from the manufactory of William Bailey, of Wolverhampton, have been publicly exposed by this College in the newspapers, the first in the year 1845, and the second and worse lot during the present month. Its composition, according to the analysis of our Prof. Reid, is:

Mercury,	7·5
Earthy Clay,	27·0
Prussian Blue, used in coloring,	1·5
Sand in combination with the clay,	2·0
Soluble saccharine matters,	34·0
Insoluble organic matters,	12·0
Water,	16·0
	100·0

An account of the former, with the correspondence between our late President Adamson and Mr. Bailey, was also published in the American Journal of Pharmacy, Vol. 11., (new series.) p. 148. The latter appears in the New-York Journal of Medicine for September.

Very large quantities of Rhubarb, much decayed, the better parts of which are dark-colored, with scarcely any taste or smell, having probably been ex-

hausted to make extract, come from England, invoiced there from 1 1-2 to 3 pence sterling per lb. It is intended and used for powdering, color being given to it by turmeric, etc.

The article called Oxyd of Zinc on the English labels, is generally Carbonate of Zinc, being imported at a price which precludes the possibility of honest preparation.

All that is received under the name of Precipitated Sulphur, (or "Lac Sulphur," as the merchants commonly term it,) except when it is expressly ordered from an honorable manufacturer, contains from 80 to 95 per cent. of Sulphate of Lime.

Opium is often invoiced at one-third the value of good quality, and is found upon examination not to be worth even that. The same may be said of Scammony.

Most of the foreign Extracts are not what they profess to be, and cannot be relied upon in the treatment of disease.

The salts of Quinine, Morphine, and all the more costly chemicals, are greatly adulterated.

We are informed by the agent of an English manufacturer of Chemicals, Extracts, and many other preparations used in medicine, that it is a regular and systematic business, carried on by his principal and others in his line, to make articles for the American market of different qualities, one for the Atlantic cities, and another, very much inferior, "for the West," meaning thereby our Western States. He gives us, for instance, the following quotations: "Compound Extract of Colocynth, 9s. 6d.; do. for the West, 5s."—the latter, as we are allowed to infer, containing no scammony at all, only the poorest sort of aloes, and but little, if any, colocynth, or extract from it. "Blue Pill, 3s. 9d.; for the West, 1s. 8d."

Is it wonderful that such enormous doses as we hear of, are taken, and indeed required at the West, and that disappointment everywhere is experienced by physicians in the action of medicines? And these examples are but few out of many that might be given. Our country is held an easy prey to the rascality of foreign counterfeiters, aided and abetted by domestic traitors, who trample down all considerations of the evils they inflict, or help to fasten upon their suffering fellow-men, in this unrighteous pursuit of gain. We, who have more of the prominent facts before our eyes, in this greatest drug mart of the Union, than come under the notice of others, and seeing the audacity with which this base trade advances, feel ourselves especially called upon to oppose it. We believe that stringent measures should be adopted by Government to suppress it altogether, and that to obtain the proper action on the part of Congress, it is but necessary to present the facts in connexion with the general corroborating testimony of Medical Institutions and Practitioners of Medicine and Pharmacy throughout the country, which we doubt not will be cordially tendered in support of our application.

We subjoin a copy of our proposed Memorial, which, if it be agreeable to you to second our efforts, you will adopt if you think proper, or—as we should prefer—set forth your convictions in your own form. We would respectfully suggest early action, as more likely to prove successful; and also the advantage of adding the signatures of Physicians and Apothecaries in your neighborhood, as far as may be conveniently practicable. Any communications on the subject (which may be addressed to our President) will be fully acknowledged, and all information that we have, freely given.

We are yours very respectfully,

JOHN MILHAU, *President.*
OLIVER HULL,
GEO. D. COGGESHALL, } *V. Pres'ts.*
WM. L. RUSHTON,
JAS. S. ASPINWALL, *Treasurer.*
JOHN SNOWDEN, *Secretary.*

New-York, August, 1847.

[MEMORIAL.]

To the Honorable the Senate and House of Representatives:

The Memorial of the College of Pharmacy, of the City of New-York, respectfully represents:

That large quantities of sophisticated and misnamed Chemicals and Pharmaceutical preparations are daily imported, not only to the injury of the Custom House revenue, and of the honest importer, but of dangerous effect upon the health and lives of all who require the aid of medicines such as they purport to be, throughout the country.

That with some unprincipled foreign manufacturers, aided and abetted by dealers of a kindred stamp in this country, it is a regular and systematic business to make different qualities of various medical preparations for the American market—the better kinds for the Atlantic cities, and others very much inferior "for the West," meaning thereby our Western States. The latter are generally altogether unlike what they purport to be, are quoted at about half prices, and are unfit for any use whatever.

That of an almost indefinite number of spurious and misnamed articles may be specified Iodide of Potassium, for which the Bromide is substituted, in whole or in part, and other salts, of an entirely different character, are also mixed in large proportion.

Blue Pill comes to us containing from 10 down to 7 1-2 per cent. of Mercury (the officinal proportion being 33 1-3 per cent.) mixed with blue clay and Prussian blue, to give it density and color—the following being the composition, by the analysis of our Professor Reid, of a lot which passed the Custom-House about the first of August:

Mercury,	7·5
Earthy clay,	27·0
Prussian blue, used in coloring,	1·5
Sand in combination with the clay,	2·0
Soluble saccharine matters,	34·0
Insoluble organic matters,	12·0
Water,	16·0
	100·0

Very large quantities of Rhubarb, much decayed, the better parts of which are dark-colored, with scarcely any taste or smell, having probably been exhausted to make extract, come from England, invoiced there from 1 1-2 to 3 pence sterling per lb.—entirely worthless trash. It is intended and used for powdering, color being given to it by turmeric, etc.

The article called Oxyd of Zinc on the English labels, is generally *Carbonate* of Zinc, being imported at a price which precludes the possibility of honest preparation.

All that is received under the name of Milk of Sulphur, except small lots expressly ordered from some manufacturing establishment of honorable character, contains from 80 to 95 per cent. of Sulphate of lime, (Plaster of Paris.)

Many of the foreign Extracts are not what they purport to be, and are entirely worthless as medicines.

Opium is often invoiced at one third the value of good quality, and is found upon examination not to be worth even that. The same may be said of Scammony.

The Essential Oils generally, the Salts of Quinine, Morphine, and all the more costly chemicals, are greatly adulterated.

These are some of the most important that come to us from abroad. Upon them the Physician depends, in many cases, for his success in controlling disease, we need hardly say, with frequent disappointment, the sufferings of the sick being protracted, other complications of disorder allowed to supervene, and life itself often sacrificed.

That numerous instances frauds, of the kind here spoken of, have been

publicly exposed in the newspapers, by the authority of this College. Such exposures have undoubtedly proved of excellent service, so far as related to each particular fraud published and the extent reached by the publication, but this unpleasant and burthensome duty is greatly inadequate to the correction of the evil.

Your memorialists therefore pray your Honorable Bodies that a law may be enacted, declaring that all imported articles intended for medical use, which may appear to the proper Custom House Officer to be spurious, counterfeit, or adulterated, shall be subject to competent inspection, and if found to be of base character, confiscated and destroyed.

And your memorialists, &c.

[Proposed addition for signatures where this form of Memorial is adopted.]

The undersigned, Physicians, Apothecaries, [and others, as the case may be,] of ———, having examined the above Memorial of the College of Pharmacy, of the City of New-York, fully concur in the necessity and importance of the law prayed for, and solicit the favorable attention of Congress thereto.

Resignation of Professor Dickson.—At a meeting of the Trustees and Faculty of the Medical College of the State of South-Carolina, held on the 28th July, 1847, Prof. Moultrie, Dean of the Faculty, presented to their consideration a letter from Dr. Samuel Henry Dickson, in which he resigned the Chair of the Institutes and Practice of Medicine, with the most cordial expression of unabated friendship for his colleagues, and his best wishes for the continued usefulness and prosperity of the institution.

The letter of resignation having been read, on motion of Mr. Desaussure, it was

Resolved, That the same be accepted and entered on the Minutes.

Mr. Pinckney, after some remarks, in which he alluded to the early connection of Dr. Dickson with this institution, his long and eminent services as a Professor, and his high character and many amiable qualities as a scholar and gentleman, then offered the following additional resolutions, which were unanimously and cordially adopted by the Board, viz:

Resolved, That the Trustees and Faculty of the Medical College of the State of South-Carolina, in accepting the resignation of Prof. Dickson, desire to express the sincere regret with which they separate from one, who was not only an original founder, but has so long been a distinguished ornament of this institution, and who has reflected honor on his native State, by the eminent ability with which he has contributed to elevate the character of the Medical Profession throughout the South; and that they cannot part with him without some testimonial of his merits, and the expression of their best wishes for his prosperity and honor, in the new field of labor to which he has removed.

Resolved, That the Secretary of the Board be requested to communicate the foregoing resolution to Professor Dickson.

Resolved, That these proceedings be published in the daily papers of the city.

At an adjourned meeting of the Trustees and Faculty, held on Monday, the second of August, Professor Geddings was unanimously elected Professor of the Institutes and Practice of Medicine, and Dr. John Bellinger unanimously elected Professor of Surgery.

Dr. Dickson has accepted the Chair of the Theory and Practice of Medicine in the University of the City of New York, vacated by the death of Dr. Revere. With the Trustees and Faculty we deeply regret that he has left our College and city, to both of which he was an ornament, and we bid him farewell with every wish for his prosperity and happiness.

From the manner in which his place in the College has been filled, we feel confident, although the loss from his resignation has been great, that the prosperity and reputation of the institution will be fully sustained.—*Southern Jour. Med. & Phar.*

Congenital Tumor of the Scalp.—(Communicated in a letter from Dr. L. Woodworth of Johnson's Creek, N. Y., to the Editor.)

A novel case occurred in my practice about a week since. It was that of a *congenital tumor*, about the size of the child's head, weighing about two pounds. It proceeded from the posterior part of the head, the attachment being about two inches in diameter, covering the posterior fontanelle and upper part of the os occipitis. The head was otherwise deformed. The os frontis was flattened down so that there was no forehead, giving the head the appearance of what, in Phrenological works, is represented as the head of an idiot. The features and body is otherwise well formed, and of the usual size. I removed the tumor soon after birth. The tumor, on dissection, appeared quite vascular and of a liver-like appearance, except that there was a substance interspersed through it resembling the brain, having the convolutions distinctly marked upon it, which led me to suppose (whether correctly or not I cannot say), that a portion of the cerebrum had escaped through the posterior fontanelle, forming a nucleus for the additional growth of the tumor, and also causing the sinking in of the superior portion of the skull. The child is still living and doing well.

Johnson's Creek, Sept 21, 1847.

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Annals of the Lyceum of Natural History of New-York.—We forgot to mention in our last No. the publication of Nos. 10 and 11, vol iv. of the Annals of the Lyceum of Nat. History. In this No. we have completed Dr. J. Leconte's *Catalogue of the Geodephagous Caleoptera* of North America, a paper which must have cost the indefatigable author immense labor and research, and which, it is presumed, no other man in the country could have written. An appendix will hereafter follow, containing descriptions of the new species received through the kindness of his friends. It is much to regretted that the Legislature of the State of New York has not made provision for completing the *Entomological History* of the State in the same splendid style as the other departments of Natural Science, already published. Major Leconte and son are the persons to whom this task would be assigned; and we trust that our next Legislature will authorize them to proceed with the work, which they are so well prepared to undertake. The present No. also contains a paper by Mr. John H. Redfield "on the distinctive characters of *Cyprea Reticulata* of Martyn, and *Cyprea Histris* of Meuschen," which does much credit to the writer.

There is also a description of a new species of *Procellariæ*, (Duck) by George N. Lawrence, accompanied with a beautiful plate. We hope this publication, which is an honor to the scientific character of our country, will be well patronized by our profession.

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Baptistæ Tinctoria.

Dear Doctor.—The following being scarcely worth a place as a separate article in your Journal, will answer as a note to your article on the *Sophora Tinctoria*.

Respectfully yours,

JAMES FOUNTAIN.

Taking a deep interest in the Medical Botany of my native country, I presume the following rough sketch will not be uninteresting to my fellow country physicians.

The plant commonly called Indigo Weed, the Baptista, or Sophora Tinctoria of Linn., grows so abundantly all over the count y, is so easily recognised, and possesses such active properties, that it is not a little surprising that it has received so little attention.

About 30 years ago Dr. Thatcher noticed the plant in his Dispensatory, as being useful in cases of gangrene from deficiency of vital power, and in some other affections proceeding from the same cause.

In June, 1837, I was called to see Jacob Post, æt. 74, of an infirm habit.

He had been a free liver, but was infirm from age, and was troubled with almost constant diarrhœa. He had a large purple patch on his leg, just above the outer ankle of his left leg. His foot was cold. He was not feverish, nor otherwise seemingly more indisposed than usual. He had no pain in his leg or foot, but only a slight soreness. In a few days his foot was spotted over with similar patches, and finally they all coalesced. The cuticle shortly pealed off, and the whole foot was covered over with a soft, black, grumous coating.

Warm stimulants and astringents were freely used externally, and tonics and opiates internally, but to no purpose; the gangrene spread gradually but slowly upwards, so that by the end of the month his leg as far up as the middle of the calf, had become one putrid mass, with no cognisable line of arrest, but gradually loosing its aspect upwards.

His leg had now become so intolerably offensive, that I determined to remove it, to rid the family of the insupportable stench, for I had not entertained the least hope of saving his life.

On the 4th of July, my son amputated the leg below the knee. On removing the dressing, I found the surface of the stump, as I had anticipated, black enough. I now determined to try the indigo weed. I made a strong decoction of the fresh root, and with this I washed the part freely, and had the dressing wet continually. The gangrene soon spread up under the integuments, forming cavities and short sinuses. Into these I injected the decoction freely twice a day.

The medicines administered internally, were a decoction of oak bark, with a few drops of laudanum, and a pretty free use of his favorite drink, brandy. Suffice it to say, he finally recovered. and enjoyed excellent health and spirits something over three years, and finally died of influenza.

Another case, of a Mr. Merrit, was on hand a few miles distant, almost precisely similar to this, in a subject about as old, but of a better constitution. Finding my case doing well, his attendant amputated his leg, but it did not save him. He used only the means recommended in surgical works generally but did not use the Tinctoria.

Since then a similar case on the back of the hand, and on one finger, came under the care of my son, of a very threatening aspect. It yielded to the Tinctoria similarly used.

Several minor cases have occurred in my practice, tending to strengthen my confidence of the great value of the plant. Its activity has, as yet, prevented my using it internally. It doubtless possesses tonic, stimulant and astringent properties in great activity, especially in its green state.

[We respectfully solicit from practitioners of medicine, especially those in the country, brief notes, like the above, on the medicinal properties of our indigenous materia medica; they will be embodied in a Treatise on that subject, which is now in course of preparation, and may thus be instrumental in accomplishing much good.—*Ed. N. Y. Jour. Med.*]

Erection of an edifice for the Buffalo Medical College.—We are gratified in being able to announce to our readers, that a sufficient sum has been subscribed by the citizens of this place, to secure the erection of a commodious and ornamental edifice for the Medical Department of the University of Buffalo. With the conviction that a suitable structure is alone necessary to place the school on a permanent basis, and secure its prosperity, the friends of the institution have just reason to congratulate themselves on the liberality and public spirit which have so promptly and efficiently responded to their appeal. The building at present occupied by the College is leased for a short period, and although it answers exceedingly well for the present, is not adapted to meet the prospective wants of the institution. The new edifice will probably be erected during the next summer.—*Buffalo Med. Jour., Sept.*

NEW-YORK ACADEMY OF MEDICINE.

Notice—We are requested by the "Committee of Arrangements," to give notice that the Anniversary meeting of the New-York Academy of Medicine will be held at the Broadway Tabernacle, on *Wednesday the 10th November* instant, at 7 o'clock in the evening; and to extend an invitation to the profession generally to attend, with their friends, upon that occasion, when an Oration will be delivered by Dr. John W. Francis.

NEW-YORK SOCIETY FOR THE RELIEF OF WIDOWS AND ORPHANS OF MEDICAL MEN.

The *Anniversary Dinner* will take place at the *Astor House, on Wednesday, 17th November*, at 7 1-2 o'clock P. M. Those members of the Medical profession who feel an interest in the objects of the Society, are invited to participate. Price of Tickets, $3 00.

JOHN G. ADAMS, EDW'D L. BEADLE,
WM. P. BUEL, AB'M DUBOIS,
J. H. BORROWE, J. R. VAN KLEEK,
JAS. R. WOOD, } Stewards.

[Dr. Washington.—As a substitute for a notice of the late lamented Dr. Washington, we copy the following from the Annalist of Sept. 15th, as better than anything we could prepare, and by no means too eulogistic of the deceased. The deceased was a member of the New-York Academy of Medicine. Dr. Barrowe has been "appointed to prepare his eulogy."—*Ed.*]

On Monday afternoon, October 30th, after a short and severe illness, Jas. A. Washington, M. D., in the 46th year of his age.

The unexpected death of the late J. A. Washington, M. D., has cast a gloom over the profession. One little week before it, and he was in unusually good health. Dr. W. was a native of one of the Southern states, and settled among us some fifteen years ago. He rose rapidly into eminence, and continued to the last to enjoy a very extensive and highly respectable practice. His loss is deeply regretted by his patients, who valued him not less as a physician than as a friend. Dr. W.'s manners were remarkably pleasing and affable. He was a very amiable man: singularly free from detraction, and had, we believe, no enemies. To the sick, whether rich or poor, he was unremittingly attentive, and it is even thought, by those who knew him best, to have injured his health by an excess of devotion to their interests. He was a sincere and practical Christian; in the duties of life, exemplary and irreproachable. Dr. W.'s professional character was unblemished. In consultation, he was candid, liberal, and wholly unassuming. In practice, he abounded in resources. He was a man of much information in his profession, and carefully kept pace with its progress. But a little while ago, Dr. W. made a short visit to Europe, and his health was rather deteriorated than benefitted by the journey.

In the death of Dr. Washington, the profession has lost one of its most estimable and respectable members; the public a faithful and devoted servant and friend. A large number of his sincerely sorrowing brethren, in testimony of their esteem, attended his mortal remains to their final abode; and his spirit, it is permitted to hope, was prepared for the awful change which so suddenly overtook him. "*Nunc placida compostus pace quiescat;*" and his memory will live in the hearts of all who knew him, as that of a good man, and an honorable and benevolent physician. Oblivion should not be allowed to rest upon a career so creditable, alike to humanity and to his profession, of which, if he did not augment the resources, he at least enhanced the respectability.

The *post-mortem* examination was made by Dr. Sabine, 18 hours after death. Present, Drs. Parker, Delafield, and Borrowe. The following is the account of the autopsy, as communicated to the editor of the Annalist, by Dr Sabine:

External Appearances.—The body is not emaciated, but slightly jaundiced,

and decomposition is commencing about the neck; on the abdomen are marks of leech bites, and a blister.

Head.—Not examined.

Chest.—Heart, normal. Left lung—upper lobe united by very old adhesions; the lung otherwise normal. Right lung—in the summit of the upper lobe was found a small obsolete tubercle, about the size of a buck-shot, while the posterior part of the lower lobe was congested.

Abdomen.—The subcutaneous cellular tissue loaded with fat about one inch in thickness. The muscular tissue was red and firm; on dividing the peritoneum, the omentum was found matted together, and lying over to the right iliac region, and adherent to the caput coli, where it formed part of the walls of a fœcal abscess, which was situated in the right iliac and lumber regions; the remaining portion of the walls of this abscess was formed partly by the caput coli, folds of the ileum, and the peritoneal lining of the walls of the abdomen; it was lined by a recently formed grayish false membrane; the cavity was about the size of a hen's egg, containing a small quantity of light-brownish colored feculent matter; at the lower part of the abscess, the appendix cœci vermiformis was found in a gangrenous condition, and on its careful removal, it was found obstructed by a small body about the size and shape of a bean, lodged about half an inch from its connection to the cœcum. Beyond this, the vermiform process was gangrenous; there was a small perforation at its extremity, from which the feculent matter had escaped. The mucous coat of the caput coli was red, thickened, and covered with small granules of lymph; the remaining portion of the colon was healthy. Several folds of the ileum and jejunum were adherent by recently-formed lymph, but there was very little effusion into the abdominal cavity.

Stomach and spleen, normal.

Liver about its natural size, of a yellowish granular structure; the gall bladder was filled by dark, greenish, inspissated bile; gall ducts clear.

Kidneys.—The left enlarged, and in the early stage of granular disease; right, healthy.

2.

Foreign Medical Intelligence.

ANATOMY AND PHYSIOLOGY.

On the Function of the Red Corpuscles of the Blood, and on the Process of Arterialization. By George Owen Rees, M. D.—(*Proceedings Royal Soc.*, June 3d., 1847.) The author states that he was first led to the new theory he has formed for the explanation of the chemical phenomena of respiration, and more especially of the change in the color of the blood which occurs in that process, by having observed that a garlic odor, similar to that evolved from phosphorus, was produced by agitating in distilled water, the clot obtained from some specimens of venous blood. His attention was consequently directed to the investigation of the state in which the phosphorus exists in the blood; and the result of this investigation was the theory, of which the following is a succinct outline.

The venous corpuscles are known to contain fat in combination with phosphorus. This compound ingredient of the corpuscles, on coming into contact with atmospheric oxygen during the respiratory act, is consumed, and combining with that oxygen, forms the carbonic acid and water which are expired, and also phosphoric acid, which, uniting with the alkali of the liquor sanguinis, forms a tribasic phosphate of soda. This salt, like many others, acts upon hæmatosine in such a manner as to produce the well-known bright arterial tint.

The analyses which the author has performed, in order to test the correctness of this theory, were made upon the blood, both of the veins and of the arteries, of the same animal; and also upon separated portions of the same venous blood; one of which portions had been artificially arterialized by having been brought into contact with air, while the other portion had not been so exposed. These comparative experiments showed that arterial blood, both when obtained from the vessels, and when artificially produced, contains in its serum a larger proportion of tribasic phosphate of soda than that obtained from the veins. The venous corpuscles, as they are contained in the clot, yield a fatty matter combined with phosphorus; while those from arterial blood yield a fat, the ashes of which manifest an alkaline reaction. Thus the venous corpuscles are shown to be acted upon both by respiration and by the artificial arterialization of the blood, in such a manner as to lead to the formation of tribasic phosphate of soda, at the expense of the phosphorus they contain.

No exact quantitative analyses were attempted by the author, the comparative experiments having been performed on smal. portions only of serum (from 25 to 40 grains); sufficiently large, however, to furnish satisfactory evidence of the actual presence of the phosphate in arterial blood, and also in those portions of venous blood which had been arterialized out of the body; while no such indications were obtained from similar portions of the blood contained in the veins.

At the conclusion of the paper, the author notices the experiments of Enderlin, in which no alkaline carbonate could be detected in the ashes of blood; and shows that this is the natural consequence of the phosphates of the clot being oxidized during combustion, and thus supplying a quantity of phos-

phoric acid sufficient to decompose completely the alkaline carbonate produced by the incineration of the lactate and albuminate of the serum. Most specimens of serum, even as obtained from arterial blood, yield an alkaline carbonate when incinerated; and this is always the case with the serum of venous blood. The author, therefore, thinks himself warranted in regarding the conclusion founded on Enderlin's experiments, that the blood contains no lactate, as being erroneous.—*Am. Jour. Med. Sciences.*

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Structure of the Ganglia of the Spinal Nerves. By Rudolph Wagner. (Comptes Rendus, May 10th, 1847.)—The discovery of the true structure of the ganglia, or at least of the ganglia of the spinal, trifical and pneumogastric nerves is an important one for the physiology of the nervous system. I found the same conformation first in the torpedo, and afterwards in the ray and shark. Each elementary fibre which comes from the root of a cerebral or spinal nerve is prolonged into a ganglionary globule, (nervous corpuscle) in which a nucleus and nucleolus may be seen. From each ganglionary globule another nervous fibre arises, which extends into the peripheric branches of the corresponding nerves. Sometimes the medulla of the fibre is seen clearly to penetrate into the ganglionary globule itself; at others, more delicate nervous fibres arise from them and the primitive fibres gradually enlarge and assume the ordinary appearance.

I was astonished, continues Dr. W., at this structure of the ganglia, which must certainly be the same in man and the other vertebrata. This discovery will change our views of the physiology of the nervous system, and the course we have pursued. But anatomy will always be the basis of physiology.—*Southern Jour. Med. and Phar.*

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Experiments on the Properties and Functions of the Spinal Cord and their relation to those of the muscles. By M. Brown Sequard. [Comptes Rendus, May 10th, 1847.]—From experiments on frogs, M. Sequard shows that after the division of the spinal marrow, the animal retains the power of contracting the muscles of the posterior extremities; that the strength of the contractions diminished for some time after the division, but that it gradually increased, and at two hours after the operation, the contractile power is twice as great as before the operation. Twenty-four hours after, it is three times as great as before; it remains at this from five to twenty days, and then gradually declines to below the natural standard. The force of the contractions was measured by weights attached to the feet by small hooks. The experiments were instituted to test the independent action of the spinal cord as a generator of nervous power, as proclaimed by Marshall Hall, and fully confirm it.—*Ib.*

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Are the movements of the Heart dependent on the Spinal Cord and Brain? By Dr. Julius Budge. [Gazette Med. de Paris, June 5th, 1847, from Arch. Fur. Physiol.]—After passing in review the whole subject, historically and experimentally, Dr. Budge arrives at the following conclusions:

1. The Medulla Oblongata is the central organ of the movements of the heart, inasmuch as it maintains the irritability of the voluntary muscles.

2. The Medulla Oblongata is also the central organ of the reflex movements of the heart; but its influence is not marked, because,

3. The movements of tho heart are principally movements of irritation, and partake very little in the reflex movements of the rest of the body.

4. The ganglia of the sympathetic nerve are not the central organs of the movements of the heart; they neither produce nor keep up its rhythm, but appear to destroy the influence of the voluntary and reflex principle.

5. The brain (of the frog) has no direct evident influence on the movements of the heart, but a decided indirect influence." —*Ib.*

SURGERY.

Wounds and Injuries of the Abdomen.—General Conclusions. By G. J. Guthrie, F. R. S.

1. Severe blows on the abdomen give rise to the absorption of the muscular structures, and the formation in many instances of ventral hernia; this may, in some measure, be prevented during the treatment, by quietude, by the local abstraction of blood, and by the early use of retaining bandages.

2. Abscesses in the muscular wall of the abdomen, from whatever cause they arise, should be opened early; for although the peritoneum is essentially strong by its outer surface, it is but a thin membrane, and should be aided surgically as much as possible.

3. Severe blows, attended by general concussion, frequently give rise to rupture of the solid viscera, such as the liver and the spleen, causing death, by hemorrhage. When the hollow viscera are ruptured, such as the intestines of the bladder, death ensues from inflammation.

4. Incised wounds of the wall of the abdomen of any extent rarely unite so perfectly (except, perhaps, in the linea alba) as not to give rise to ventral protrusions of a greater or less extent.

5. As the muscular parts rarely unite in the first instance after being divided, sutures should never be introduced into these structures.

6. Muscular parts are to be brought into apposition, and so retained principally by position, aided by a continuous suture through the integuments only, together with long strips of adhesive plaster, moderate compression, and sometimes a retaining bandage.

7. Sutures should never be inserted through the whole wall of the abdomen, and their use in muscular parts, under any circumstances, is forbidden; unless the wound, from its very great extent, cannot be otherwise sufficiently approximated to restrain the protrusion of the contents of the cavity—the occurrence of which case may be doubted.

8. Purgatives should be eschewed in the early part of the treatment of penetrating wounds of the abdomen. Enemata are to be preferred.

9. The omentum, when protruded, is to be returned, by enlarging the wound, through its aponeurotic parts if necessary, but not through the peritoneum, in preference to allowing it to remain protruded, or to be cut off.

10. A punctured intestine requires no immediate treatment. An intestine, when incised to an extent exceeding the third part of an inch, should be sown up by the continuous suture recommended in pages 26 and 27.

11. The position of the patient should be inclined towards the wounded side, to allow of the omentum, or intestine, being closely applied to the cut edges of the peritoneum. Absolute rest, without the slightest motion, should be observed. Food and drink should be restricted when not entirely forbidden.

12. If the belly swells, and the propriety of allowing extravasated or effused matters to be evacuated seems to be manifest, the continuous suture or stitches should be cut across to a certain extent, for the purpose of giving this relief.

13. If the punctured or incised wound is small, and the extravasation or effusion within the cavity seems to be great, the wound should be carefully enlarged, and the offending matter evacuated.

14. A wound should not be closed until it has ceased to bleed, or until the bleeding vessel has been secured, if it be possible to do it. When it is not possible so to do, the wound should be closed and the result awaited.

15. A gunshot wound penetrating the cavity can never unite, and must suppurate. If a wounded intestine can be seen or felt, its torn edges may be cut off, and the clean surface united by suture. If the wound can neither be seen nor felt, it will be sufficient for the moment to provide for the free discharge of any extravasated or effused matters which may require removal.

16. A dilatation or enlargement of a wound in the abdomen should never

take place, unless in connection with something within the cavity rendering it necessary.

17. When balls lodge in the bones of the pelvis, they should be carefully sought for and removed, if it can be done with propriety and safety.

18. In a wound of the bladder, an elastic gum catheter should be kept in it, until the wound is presumed to be healed; unless its presence should prove injurious from excess of irritation, not removed by allowing the urine to pass through it by drops, as it is brought into the bladder.

19. In all cases in which a catheter cannot be introduced, in consequence of the back part of the urethra or the neck of the bladder being injured, an opening for the discharge of the urine should be made in the perineum.

20. The treatment of all these injuries must be eminently antiphlogistic, principally depending on general and local blood-letting, absolute rest, the greatest possible abstinence from food, and in some cases from drink, the frequent mistration of enemata, and the early exhibition of mercury and opium, in the different ways usually recommended, with reference to the part injured.—(*Ranking's Abstract.*)

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Treatment of Chronic Cystitis by injections of a solution of Nitrate of Silver.—Dr. Robert L. MacDonnel, in an interesting paper in the *British American Journal of Medical and Physical Science*, (Sept., 1847,) extols, in strong terms, the efficacy of injections of nitrate of silver, in chronic inflammation of the bladder,—a disease which has proved very refractory to other remedies, and which entails on those who labor under it, the most exquisite suffering. In proof of the value of the remedy, he relates four cases, one of which is the following:—

"A gentleman consulted me last February, under the following circumstances. He had suffered for some months from inflammation of the bladder, marked by frequent desire to pass water, accompanied by heat and scalding, violent straining, pain in the region of the bladder, above the pubis and in the perineum, and a constant feeling of heat and weight in the lower portion of the abdomen. These symptoms gradually increased in severity. The urine became at first bloody, and afterwards purulent, and the desire to void it became so urgent, that it had to be yielded to at last every fifteen minutes; the discharge of the fluid being followed by pain and scalding at the neck of the bladder, and along the course of the urethra. His general health became impaired; and his sleep being so frequently disturbed, a haggard and anxious expression of countenance, and extreme irritability of the system, were soon established.

"When he first consulted me, fully one-half of the fluid passed from the bladder was pure pus; and after repose, a deposit of blood-globules was found to intervene between this and the supernatant urine—the latter being highly alkaline, fetid, and albuminous. Examined microscopically, it exhibited some scales of nucleated epithelium, a large deposit of triple phosphate in prismatic crystals, pus, and blood-globules. There was no pain in the loins or along the ureters. He had a stricture of long standing, about one inch from the orifice of the urethra. In addition to the above characters, the urine was frequently mixed with tenacious masses of lymph, varying in length from half an inch to an inch,* and entangling a quantity of earthy matter; they frequently obstructed the passage of the urine through the stricture, and required to be broken up and squeezed through by the pressure of the patient's fingers.

"Having dilated the stricture, so as to allow a large-sized catheter (No. 11, Weiss) to pass, I determined to treat the disease by injections of nitrate

* C'est encore dans les cas de suppuration, qu'on trouve des productions pseudo-membraneuses dont parlent les auteurs. C'est l'expulsion de ces fausses membranes par l'uréthre qui a fait répèter à tant de medicins que la tunique muqueuse de la vessie pouvait être entièrement detachée et expulsée par portions avec les urines.—Ferrus, Dic. de Méd., Art. *Cystite.*

of silver; and accordingly, on the 17th of February, I injected into the bladder a lotion composed of eight grains of lunar caustic, two drachms of tincture of hyoscyamus, and four ounces of distilled water.

"The injection caused hardly any inconvenience, except that of inducing a strong desire to empty the bladder, which was prevented by compressing the penis, until the fluid had been in the bladder for about one minute, when it was allowed to escape. The next day, the patient stated that he was somewhat better, but the quantity of pus and blood was not, however, much diminished, and the flakes of lymph were more numerous and larger than before. Although he continued improving, yet, as the amendment was not as rapid as I anticipated, injection of the viscus was again resorted to on the 5th of March. On this occasion, the quantity of caustic was increased to sixteen grains in the four ounces of distilled water, and the hyoscyamus was omitted. A decided improvement immediately followed; the frequency of making water was greatly diminished; instead of requiring to be voided every fifteen minutes, the bladder could retain its contents for more than two hours at a time, and the quantity of pus had greatly decreased. An injection, of the same strength, was again employed on the 28th of March, and with happy results. The urine could now be retained for three or four hours; was passed without pain or scalding; was clear and transparent, and, to the naked eye, free from pus; but, when examined microscopically, a deposit of pus-globules and some epithelial scales were perceptible. On the 18th of April, I repeated the injection, and since then he has been completely free from any symptoms of his troublesome disease; he has resumed his former mode of life and pursuits, and has been subject to various changes of temperature whilst travelling, without experiencing the least return of his former symptoms."

The method of injecting the bladder which Dr. MacDonnell has found most efficient is the following:—

"The patient being placed either in the erect position or on a sofa, a gum elastic catheter, about the size of No. 9 or 10 (Weiss,) is introduced, and water at the temperature of 98° Fahr., is injected through this into the bladder, by means of a caoutchouc bag, or, what I prefer, a syringe, with a "three-way valve," by which the fluid can be drawn back from the cavity if necessary. After the bladder has been completely cleansed of any fetid urine and mucus which may be contained in it, the solution of the caustic being heated to the same degree, is to be introduced in a similar manner, and allowed to remain there for about one minute, care being taken, by compressing the urethra, to prevent its being forcibly ejected by the violent straining that is certain to be induced. The quantity of water or solution should never exceed four ounces, for though the bladder in its healthy state is capable of containing nearly a pint and a half of urine, without being over-distended, yet as the quantity it is capable of retaining in severe chronic inflammation, seldom exceeds a few table-spoonfuls, the bladder accommodates itself to its diminished contents, and gradually becomes smaller, and consequently, a large injection would act injuriously in two ways—by over-distending the organ, or by passing up into the ureters. In fact, we find it unnecessary to use a larger quantity of the solution than I have mentioned, for it requires some address to introduce even that amount without resorting to force. The patient is then ordered a warm bath, and should the urine become bloody or mixed with shreddy concretions, he should use frequent fomentations and anodynes. But these symptoms seldom last for more than a few hours, and our patient should always be informed that such consequences are likely to be the immediate effects of the operation.

"My patients have not suffered from retention of urine, which it appears frequently follows the use of the solid nitrate in the practice of Lallemand, nor have they had any inconvenience which was not readily allayed by an opiate.

"The advantages which I consider the solution of nitrate of silver possesses over that substance in a solid form are, first, that we can employ it of various strengths, from one to four grains, or even stronger if necessary.

Secondly, we are certain that the application comes in contact with the entire diseased surface. Thirdly, we are also satisfied that it does not act more violently on one part than on another. Fourthly, it is more readily employed by an inexperienced operator; and, above all, it cannot possibly be attended with any risk, from the apprehension of which it is not easy to divest the mind, when using the *porte-caustique* of Lallemand; and together with the above advantages, it has this also to recommend it, that it will be found at least equally successful."—*Amer. Jour. Med. Sci.*

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Treatment of Dissection-wounds.—D. Hargraves recommends the following as a simple, and in his experience, efficacious plan of treating dissection-wounds. It is applicable to the fingers and the thumb, the parts most frequently liable to be wounded:—Wash them well for a few minutes in cold water, then suck them; immediately after apply a ligature a little above the cardiac side of the wound with such tightness as will induce decided congestion, which will be indicated by the color of the parts; some blood will also flow from the injured surface, and a certain degree of numbness will follow its application. The ligature is then to be firmly tied and knotted, and allowed to remain on for at least twelve hours; I have kept it on for double that period, and still pursued my professional engagements.

The physiology of such treatment is explained by the ligature causing a permanent stasis in the fluids of the part injured on its distal side, and producing a well-marked plethora there; the greater the amount of it, the greater will be the impediment to absorption. The constriction caused by the ligature, will also oppose a barrier to the return of the venous and lymphatic fluids into the system, consequently to their being circulated through it, so that the poison is prevented entering into the constitution and destroying it, and will then be eliminated locally from the part where it was first applied; thus suffering and pain will be obviated, and life, valuable to all, will be preserved.—*Dublin Med. Press.*

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Removal of a Portion of the Substance of the Brain for Cancer. Temporary Recovery. By M. Sanson.

In the year 1834, Mr. B. came to Paris for the purpose of undergoing an operation for a cancerous tumour of the orbit; the growth had acquired the size of the head of a fœtus. Pains in the limbs and some degree of previous paralysis, showing that the brain was in all probability implicated, induced Professor Sanson at first to set aside all idea of an operation. But, the patient having expressed his settled determination to destroy himself if the operation was not proceeded with without delay, M. Sanson consented to operate in presence of several British practitioners, fellow countrymen of the patient. A portion of the frontal, the nasal, and maxillary bones, having been removed, the dura mater was found to be affected, and was likewise excised, but the cerebral substance itself was occupied by the disease; and after a short conference, in which Sanson alone persisted in the opinion that it was his duty to achieve the operation he had begun, one ounce and a half of cerebral substance was removed by a section which penetrated into the lateral ventricle. The cerebral vessels were cauterized with a heated probe, and the patient recovered completely from the effects of this tremendous operation—no paralysis, no disturbance whatever of the cerebral functions having been observed. Sixteen months after, the patient died in consequence of reproduction of the growth in the scar, and on dissection the disease was found to extend as far as the posterior cerebral lobe. (*Med. Times.*)

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Burns treated with Ammonia.—M. Guérard, Physician to the "*Hotel Dieu*," has used, for upwards of twenty years, a concentrated solution of ammonia* in burns of the first and second degrees. He has frequently hap-

* Aqua Ammonia, we presume.—*Trans.*

pened to burn himself with charcoal, phosphorus, gunpowder, etc., and the immediate application of this remedy has always arrested any further development. When the ends of fingers are burnt, he plunges them in the liquid without admixture of water. If the seat of the burn was such as to prevent this immersion, he would cover it with a compress dipped in the ammonia, and would prevent its evaporation by covering it with dry cloth. In such cases it is necessary to repeat the application from time to time, whenever the heat or sensation of burning returns. As soon as the ammonia is applied, the pain ceases; and the relief continues longer, in proportion to the strength of the solution. According to what M. Guérard has himself experienced, he believes that the application should be continued at least an hour, in order to give permanent relief, after which the burn may be left without any further dressing. If the burn be extensive, one hour will not be sufficient, but then the patient will be apprised of it by the return of pain. M. Guérard does not believe this application adapted to cases in which the skin is removed. The pain is immediately relieved, no phlyctæna are developed, and the cuticle dries and finally falls off like parchment. It is well to observe, that if the application has been made to an extensive surface, the compresses should be handled with forceps, for concentrated ammonia very rapidly vesicates the skin in the healthy state. The patient, as well as dresser, should also avoid breathing the vapor, and the vessels used should be made either of tin or of earthenware, inasmuch as copper is readily acted upon by ammonia.

The use of ammonia in burns is not new. Physicians have long since observed that it prevents in such cases the development of inflammation. It has been seen, however, that it is especially suitable for burns of small extent, and in which the skin is not excoriated, that M. Guérard advises the use of this caustic. Thus far we see no objection to recommending its trial to practitioners. As to burns involving a large surface, it requires more circumspection. There are efficacious means in more common use, such as the oleo-calcareous liniment and carded cotton, prolonged cold baths and fomentations with iced-water. There is at this time a case at the *Hopital St. Louis*, in which the most happy results have been obtained with cold water.—[*Translated from Jour. des Conn. Méd.-Chir.—Bull. Gén. de Therap.*, April, 1847.] —*South. Jour. Med.*

MEDICAL PATHOLOGY AND PRACTICAL MEDICINE.

Quinine in Acute Articular Rheumatism.—Several French journals have lately directed attention to the employment of quinine in acute rheumatism. We are informed that it was M. Briquet, now one of the physicians of La Charité, Paris, who first administered it in this disease. The success which he obtained could scarcely vanquish the repugnance which many had to prescribing so energetic a medicine. Some unfortunate cases, also, in which, from the dose being too large, or the individuals peculiarly predisposed, alarming accidents, and even death had been caused, added to the discredit inwhich it was at first held. At present, however, a re-action has taken place in its favor, and a considerable number of the hospital physicians in Paris are of opinion that, given with prudence, in moderate doses, beginning with 1½ grammes to an adult, and 75 gr. to a child, the sulphate of quinine causes effects of a slightly energetic nature only, at most trifling cephalalgia, noises in the ears, and slight indistinctness of vision.

Amongst the physiological effects, one of the most interesting, without doubt, is the depressing action which it exerts on the circulatory system, the pulse daily diminishing in force and frequency. In a few days the pulse has been known to fall fifty beats, and that without the individual experiencing any very well-marked symptoms of intoxication. Another important effect, is the modification it produces in the rheumatismal pains. In general, at the end of 12 or 24 hours the patients are considerably relieved; the swelling and rigidity, however, still remain. Unfortunately this result is not al-

ways constant and durable, but there are exceptional cases, for in the great majority of instances, the amelioration is rapid and permanent. It has been objected to this treatment that it does not prevent the cardiac complications which are so likely to arise. But do we know any absolute means of doing this? Do we not see rheumatic pericarditis develop itself in individuals treated by the most energetic antiphlogistics? But in some cases it has been observed that the cardiac disease has diminished daily under the use of sulphate of quinine.

On the whole, the treatment of acute articular rheumatism by sulphate of quinine, when employed with prudence, is without danger. Doubtless, it will not succeed in every case, but where is the remedy that will? Whenever there is no amelioration on the third or fourth day, notwithstanding that the dose has been gradually increased, the medicine should be discontinued, and some other treatment employed, such as bleedings, nitrate of potass, colchicum, opiates, &c. But whenever the pains are rapidly diminished, and the pulse rendered less frequent, it is very probable that the articular rheumatism will be cured on the eighth day. In one case it only continued four days. Sometimes it is useful in robust and phlethoric subjects to precede the use of sulphate of quinine, by a bleeding from the arm. It may be added that the drug is easily administered, that children take it without hesitation, notwithstanding its bitter taste, and that it will, probably, be of the greatest service in the treatment of acute rheumatism in young persons, a period of life when blood-letting, if not injurious, is seldom advantageous.—*Month. Jour. Med. Science, from L'Unio Medicale*, 23d Fevrier, 1847.

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Nitrate of Strychnia externally in Gout.—M. Wendt recommends the nitrate of strychnia, in the form of ointment, in irregular gouty affections; for example, in gouty affections of the vertebral column, which, through the filaments of the great sympathetic, attack the chest, and give rise to symptoms imitating angina pectoris. The formula recommended is as follows:—nitrate of strychnia 10 parts; axunge 8 parts: to be made into a perfectly homogeneous ointment, and applied by friction on the sides of the spine two or three times a day.—*Am. Jour. Med. Science, from Gazette Medicale de Paris*, 13 Mars, 1847.

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On Bronchitis. By. Dr. Thomas Laycock, Physician to the York Dispensary, and Lecturer on the Theory and Practice of Medicine.

Sometimes there is little or no expectoration during or after an attack of bronchitis; but there is a most teasing cough. In such a case an opiate is indicated, and may be safely given; but you must be very careful how you prescribe opiates in bronchitis. If the cough is excited by the mucus contained in the bronchial tubes, and not by an irritable condition of the nerves or their lining membrane, it is nature expelling an injurious thing. The mucus *must* be got rid of somehow, and I do not know how it can be got out of the tubes except by coughing. If you give an opiate, it is true that you give the natural effort a quietus, but at the same time, you paralyze the sensory nerves. You paralyze the muscular fibres; and at last, when the mucus has accumulated to such an extent that your patient must cough or die, he cannot cough! Old people are often complaining of their violent morning cough—as soon as they awake they begin; but it is because mucus has accumulated in the bronchi during the night, and it is only perceived by their mucus membrane when sleep ceases—the sentinels have been dormant. But the mucous *must* be expelled, and, therefore, the patient *must* cough. The plan in these cases is to reduce the blenorrhœa; first, by taking care that the membrane is not irritated by cold air, and then by suitable remedies. In the meanwhile preach patience to your patient, and tell him his cough is his safeguard so long as the lungs are clogged with phlegm. Sometimes mothers go to a druggist for "something for a cough" that their children had: they get oxymel of squills and syrup of poppies, give a good dose to quiet the

babe at night, and in the morning send for the doctor—its cough is stopped, it is "closed in the chest," its lips become livid, and you have to repair the mischief done by the opiate.—*Med. Gaz. Jan.* 1847.

On the Treatment of Dysentery. By Dr. W. Baly—[In the Gulstonian Lectures this year, Mr. Baly gives an account of the treatment which he has for several years found most successful in the treatment of the dysentery which prevails in the Milbank Penitentiary. First as to that form of the disease which has chiefly the character of inflammation of the larger bowel, he says,]

The chief means I have found successful in these cases, and the means which have rarely failed, where the dysentery was not complicated with some other diseased state, are blood-letting, the administration of calomel with opium, and gentle aperients. General blood-letting has seldom been required, but free local blood-letting by means of leeches has never been omitted when there was well-marked tenderness of the abdomen; or in the absence of tenderness, when the other symptoms indicated the existence of active inflammation in some part or other of the large intestine. The application of leeches, in the number of twelve or twenty-four, has been repeated several successive times at intervals of some hours, when the symptoms were urgent, and were not readily subdued by the means first used.

The calomel and opium have generally been administered in doses of two grains of the former, and one-third or half a grain of the latter medicine, every three, four, or six hours, as long as the character of the evacuations and the state of the local and general symptoms indicated the existence of inflammation, or until the state of the gums showed that the system was affected by the mercury. In the more severe cases, the production of this effect on the system to the full extent was required; but when the disease was of only moderate severity, it was generally subdued so quickly, that the mercurialization of the system to a further extent than was manifested by a slight swelling and tenderness of the gums was unnecessary.

Mild aperients also have been found most useful in perhaps the majority of the cases, but especially in those where the lower part of the large intestines was the seat of the disease, and where the fæces were retained, so that the evacuations consisted almost entirely of mucus, tinged or mixed with blood. In these cases the administration of one, two, or three drachms of castor-oil has produced free feculent evacuations, and has afforded great relief to the symptoms The beneficial effect produced by the action of this mild aperient medicine has often been very remarkable, greater than I know how to explain; while evil seemed always to result from allowing more than twelve hours to pass without obtaining a free feculent evacuation, if the frequent discharge of bloody mucus and other signs still indicated the persistence of inflammation. In many cases, however, no aperients whatever were required, free discharges of the feculent contents of the bowels taking place spontaneously. Indeed, where the cœcum and ascending colon were the seat of the disease, the active stage of the inflammation was almost always attended with copious discharges of liquid fæces, and the subsidence of the inflammation was in a great measure evidenced by the less frequent occurrence of these discharges, and their less liquid character.

[When calomel, though given as above indicated, increases the irritation, mercury with chalk, and Dover's powder, should be substituted. In every form of dysentery, strict attention to diet is highly important; meats, broths, and succulent vegetables, should be withheld, till we may fairly suppose the mucous membrane to be in a natural condition, or they will protract the cure. In the chronic form of the disease the best astringents were found to be tincture and infusion of catechu and sulphate of iron; respecting their employment, Dr. Baly observes:]

But although astringent measures are most valuable means in the treatment of chronic dysentery, their action, according to my observation, should never be carried so far as to produce actual constipation of the bowels, for

this has almost always been followed by an aggravation of the disease. Opiate remedies too, though generally highly serviceable, and even essential, have sometimes arrested the secretion or excretion of the bile, and have thus produced an injurious effect on the local disease as well as on the general health of the patient. In such cases it has been found necessary either to omit altogether the use of opium, or, diminishing its dose, to combine with it some dandelion or rhubarb.

[When opiate enemata fail to check the tenesmus and bloody discharge, a few ounces of black wash, with a drachm of laudanum, may be injected.]

Other stimulant injections, as solution of nitrate of silver, have appeared useful under similar circumstances, but on the whole, the black wash with laudanum has been found the preferable remedy. At a later stage, when the inner coat of the bowel, having mortified, was becoming detached, similar stimulating injections have appeared to aid the process of separation, and the healing of the solutions of continuity. At all events, the discharges from the bowels, during their use, have become more healthy. Advantage has been derived also from these remedies, especially from injections of a weak solution of sulphate of zinc, when, in the still more chronic stage of the disease, a copious secretion of purulent fluid has taken place from the ulcerated surface of the lower bowel. The discharge has rapidly diminished in quantity, and there has been every possible evidence that the healing of the ulcers was promoted.—*Med. Gaz., March* 26, 1847.

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Treacle as a local Remedy for Rheumatism.—Mr. Vines stated to the Reading Pathological Society, a case where a patient was suffering from rheumatic pains of the legs, and had been treated by eminent men in various ways without relief, when an old nurse recommended the legs to be wrapped in flannel soaked in treacle for some days, which procured him complete relief. He therefore thought there was some sedative influence in the treacle.—*Prov. Med. and Surg. Journal.*

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Treatment of Inflammatory Induration of the Cervix Uteri by deep Cauterization with Potassa Fusa.—Dr. Simpson's own observations fully confirm the recorded opinions of Dr. Bennett and others regarding the general dependence of leucorrhœa upon inflammatory ulceration and induration of the cervix uteri. He has found inflammatory enlargement and induration of the tissues of the cervix very frequent in practice, and existing, in fact, in most cases of very chronic and aggravated leucorrhœa. In practice he has seen it mistaken for the induration and ulceration of carcinoma, &c. Formerly, in the treatment of these common cases, Dr. S. employed the frequent local application of leeches, and counter-irritation to the sacrum, &c., with the use of pessaries of mercurial and iodine ointment, keeping the indurated tissues imbedded in those applications, &c. The cure in this way is tedious, and months are often required before the indurated parts become reduced. Various local escharotics, partly to destroy the indurated tissues by direct decomposition, and partly to soften down the remainder by new inflammatory action, have been in modern times employed for the same purpose, and with much more certain and expeditious effect. Dr. S. has in this way employed, in a number of cases, nitrate of silver often applied, Vienna paste, (*potasse cum calce*), and nitric acid. He states the particulars of a case which he had treated successfully four years ago with nitric acid, and he had lately seen the patient in perfect health; it was at the time supposed that she had cancer uteri. Latterly, D. S. has abandoned these and other escharotics, and now always uses the common *potassa fusa*. He has found it far more manageable, speedy and certain, than any other method. He uses it of course through the speculum, applying a stick of it freely with a proper caustic holder to the ulcerated and indurated tissues. It requires to be rubbed or held *strongly* for a time against the part which is to be destroyed. In general, a piece three-quarters of an inch, or an inch long, is melted down. The decomposition produced by it often causes a hissing sound. If the induration is extensive, and the whole

cannot be removed at once, increased action and absorption are set up in what remains, and the parts adjacent become softened and diminished in size. Absorption in this way is truly one of the results or consequences of inflammation, though still an undescribed *termination*. In some aggravated cases, two or more applications of the caustic are required at intervals of eight or ten days. Dr. S. has never seen pelvic cellulitis or any other bad result follow. The appearance after the operation is as if a portion had been clean cut out with the knife. A large quantity of vinegar and water is immediately thrown up through the speculum to neutralize the potassa, and prevent it from injuring the sound parts. A copious purulent discharge usually follows for several days, requiring the use of astringent washes, or zinc ointment pessaries. When the whole of the induration is once removed, the remaining ulcer heals rapidly and permanently. An ulcer over an indurated part may be cicatrized, but it is almost certain to break out again and again, till the induration itself is reduced.—*Month. Jour. Med. Sciences*, July, 1847.

Cynanche Laryngea, or Acute Œdema of the Glottis.—Dr. Budd endeavors to show that the disease known to practitioners under the above title is really erysipelas, commencing in the fauces, or in their neighborhood; and that it has been generally supposed to be confined to the larynx, and has been named laryngitis, in consequence of its often proving fatal before the erysipelas has had time to spread far from this part.

In support of this view, he relates five fatal cases of this disease that have recently occurred in London; one in his own practice in King's College Hospital; three in the Dreadnought, the particulars of which were given him by Mr. Hudson; and one in Charing-Cross Hospital, under the care of Mr. Avery, which has been published in the medical journals.

These cases, the author observes, were clear examples of the same disease; but they did not all begin exactly in the same manner. In three, the inflammation commenced in the fauces; in one, it commenced in the parotid gland; and in one, the first appearance of it was an erysipelatous blush at the angle of the lower jaw.

In all cases, the inflammation soon spread to the glottis, and produced there the same effects—namely, redness, and great thickening of the epiglottis, and of the lips of the glottis, with effusion of sero-purulent fluid in the submucous cellular tissue to such a degree as, in three of the cases, to produce almost sudden closure of the glottis, and consequent suffocation.

In three of the cases in which death occurred within a few hours after the inflammation of the glottis came on, and within twenty-four or thirty-six hours from the commencement of the malady, the inflammation had not time to spread far, and the air-tubes and lungs, and other organs, were sound.

In the other cases, which were more protracted, the inflammation had spread down the air-tubes, and there were marks of inflammation in the chest, and an infiltration of a sero-purulent fluid in the loose cellular tissue of the neck.

The occasional connection of laryngitis with erysipelas was noticed by Dr. Cheyne, in his article on Laryngitis in the "Encyclopædia of Practical Medicine;" and again by Mr. Wood, in a paper published in the seventeenth volume of the "Medico-Chirurgical Transactions." The first person to treat expressly of it was Mr. Ryland, of Birmingham, in his works on "Diseases of the Larynx."

The author cites the facts related by Mr. Ryland, and observes, that they prove conclusively that inflammation of the larynx, causing great swelling of the lips of the glottis, and infiltration of fluid in the submucous cellular tissue, and thus leading to speedy suffocation, occasionally results from the poison of the erysipelas.

He considers the following circumstances favor the opinion he has expressed as to the nature of the disease:—That the inflammation spreads in the same mode as in erysipelas of the skin, presenting the deep redness and swelling, and infiltration of a serous or sero-purulent fluid, which occur in

that disease; that it is more fatal than ordinary laryngitis; and that it occurs most frequently amongst the inmates of hospitals in which erysipelas prevails, and amongst such of them as are peculiarly liable to erysipelas:—viz., convalescents from continued fever, or eruptive fevers, and those laboring under secondary syphilitic ulcers.

In the treatment of this disease, making a number of punctures on the back of the tongue and fauces with a sharp bistoury, is recommended; and two cases are related in which this operation, performed every two or three hours, proved successful.* The same measure was long since re-copied in practice by Lisfranc. Tracheotomy offers a valuable resource if performed sufficiently early. (*Rankin's Abstract.*)

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MISCELLANEA.

Mesmerism.—The learned Editor of the Dublin Quarterly Journal of Medicine, in a review of Colmick on Insanity, speaks as follows on the subject of mesmerism:—

"It is now manifest that all the phenomena of modern mesmerism have occurred, on a great scale, as symptoms of cerebral or mental disease; paralysis of all the senses and of motion; rigidity or flaccidity of the muscles; complete insensibility to pain; obedience of the functions of animal life to the will of the operator; development of apparently new intellectual powers; belief in clairvoyance, the spiritual life, and all the remaining phenomena of somnambulism, have been seen, not in isolated examples, but occurring in hundreds, we might say thousands of cases. We implore our medical brethren to bear these facts in mind, and not to lend their sanction to the more than contemptible delusions practised and patronized in the present day. But little acumen is required to understand the master-trick of mesmerism, namely, the power of reading the thoughts of the magnetizer. In the diseased condition induced by the manipulations of mesmerism, one of the most remarkable characters is the excitement of the brain; the subject is endowed with exquisite penetration, and a look or movement, totally inappreciable to the bystanders, is at once seized, and the order acted on. The clairvoyance is true so far as the patient is concerned; that is to say, he believes that he sees what he has never seen, and his descriptions are easily swallowed as truths by the weak and credulous. It is melancholy to reflect on our ignorance, when we find such things believed. Why do the mesmerized limit their clairvoyance to the description of the interior of houses and furniture, old gentlemen sitting in chairs, ladies reading, or the arrangement of furniture? Why do they not tell the fate of armies; anticipate the bulletins of battles; declare the advent of revolutions, the state of markets, or the result of every great undertaking of man in any part of the earth? In a word, why are they not the electric telegraphs of the round world? But why pursue this further? Until the education of the better classes is improved, we must expect to witness these follies and ignorances.

"We have spoken of the feigned and unfeigned phenomena of mesmerism. In the present day there are two classes of somnambulists; one, those who, though at first innocent victims of this excitement, become from repetition, as it were, demoralized, and then, making a trade of their condition, exhibit a mixture of real and feigned phenomena. These are generally women in the pay of the travelling adventurer. In the second class are to be placed individuals who have been accidentally, and for the first time, brought under the operation of mesmerism. The itinerant mesmerizer arrives in some locality, and exhibits his servant, a person already rendered susceptible to the diseased condition, and too often demoralized, so as to feign and assist voluntarily in exciting wonder. The more remarkable phenomena are then exhibited on this individual, and then the production of sleep and muscular paralysis, and

* Reported in Lancet, &c., March, 1847.

rigidity in some of the bystanders, is accepted as proof of the "truths of mesmerism." We are sorry to see medical men even witnessing these exhibitions; the production of disease for the purpose of public amusement or excitement, ought not to be countenanced by a profession whose calling is to repress or remove disease; and if anything was wanting to increase this feeling, it is the quantity of falsehood and delusion, voluntary and involuntary, which is mixed up with the whole matter.

"Diseased excitement of the nervous system, whether we consider the body or mind, is producable in many persons by various means; and the special conditions of somnambulism, ecstasy and convulsion, are accompanied by various phenomena, according to the circumstances of the case, and the physical and moral character of the subject. The great error lies in the mal-interpretation of the phenomena, and the belief in the existence of a special influence or fluid passing from the operator to the patient. Let it never be forgotten, that all these phenomena, without any exception, have existed in epidemic diseases, and that they still recur spontaneously as symptoms of ordinary nervous malady. And, when it is recollected that for three centuries Europe was tormented to the heart by this very disease, in an epidemic form, the guilt and folly of re-producing it, or any one of its symptoms, artificially, cannot be too strongly reprehended. We have heard of a case in which confirmed epilepsy was the consequence of repeated mesmeric operations on the innocent child of an amateur, a result not to be wondered at, for it is in the very nature of nervous diseases, that, when once produced, they are liable to return, either in their original or some other form. There is also another and more grievous result—we mean the demoralization of the individual so operated on—a condition equally produced in cases of badly treated hysteria. In time, however, the advance of knowledge will dispel these delusions, and we hail the increasing connexion of Mesmerism with Phrenology and Homœopathy as a good omen, for the history of such quackeries shows that they thrive best when standing alone in their falsehood. In the meantime, let us call upon the profession to discountenance all these follies and delusions, and to so study the subject, that we may be prepared to guide the public mind, still so ignorant on all physiological and pathological subjects. We have never believed in the old adage, that a little knowledge is a dangerous thing, for knowledge is in itself so excellent, that the smallest portion of it is invaluable; and we hold it to be imperatively called for, that our universities and public schools should see that some instruction in the first principles of medical science should be given to the students of divinity and law, and to that class which is to constitute the nobility and gentry of the country. Were this done, quackery would have fewer supporters. The bar would exhibit greater knowledge of medical jurisprudence, and we would not see the clergy so frequently supporting a system of falsehood and demoralizing error."

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